The Mining Journal
AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 540.—Vol. XV.] LONDON: SATURDAY, DECEMBER 27, 1845. [Price 6d.

LEAD MINE FOR SALE.—The BELGRAVE MINE, in DENBIGHSHIRE, distant about four miles from the town of Mold.—TO BE SOLD, BY AUCTION, by Mr. C. WARTON, at the Auction Mart, opposite the Bank of England, on Wednesday, January 7, 1846, at Twelve o'clock, unless previously disposed of by private contract, the LEASE of the above MINE, with all the BUILDINGS, ENGINES, PITWORK, and MACHINERY, and the STOCK of MATERIALS on the MINE.—The working of this promising mine has ceased, and it is now OFFERED FOR SALE, in consequence of the death of the late proprietor. It is held under the Marquis of Westminster, at 15s. per ton royalty, whilst the price of the lead is under £15 per ton, and 20s. per ton when the price of lead is above that sum, for a lease of twenty-one years, from 1st of May, 1845. An adit, or day level, is carried into the heart of the mine, at a depth of 100 fathoms; and a further depth of twenty fathoms below that has only yet been reached. Ample engine-power is erected upon the mine, and a small additional outlay only is required to bring the mine into a state of returns. The whole will be sold upon very moderate terms, and with immediate possession. 1

Reference may be made to Mr. John Taylor, jun., Coed Dû, near Mold, who will give every information as to the state and prospects of the mine, and orders for its inspection, and who is authorised to treat with parties desiring to purchase; or to Mr. C. Warton, auctioneer and estate agent, 38, Threadneedle-street.

SOUTHERN AND WESTERN MINING COMPANY OF IRELAND.

Registered Provisionally, and to be incorporated under Letters Patent from the Queen.

No shareholder liable beyond the amount of his shares.

Capital £325,000, in 15,000 shares, of £15 each.—Deposit £3 per share.

PROVISIONAL COMMITTEE.

Major N. L. BEAMISH, K.H.F.R.S., Ballincurrig, county of Cork, chairman
Horatio Townsend, Esq., D.L., Woodside, county of Cork
Daniel Leahy, Esq., D.L., Shanakiel House, county of Cork
Thomas Somerville Reeves, Esq., J.P., Tramore, county of Cork
Robert Carr, Esq., merchant, Sidney-place, city of Cork
St. John Jefferyes, Esq., J.P., Grenville House, city of Cork
Peter Fitzgerald, Esq., Inchbeg, county of Cork
William K. Rogers, Esq., Grand Parade, city of Cork
James P. Bell, Esq., Fermoy, county of Cork
Robert Briscoe, jun., Esq., Fermoy, county of Cork
Lionel Fleming, Esq., J.P., New-court, county of Cork
Charles B. Ware, Esq., R.N., County Club, city of Cork
John Gould, Esq., merchant, Sidney-place, city of Cork
John Leahy, Esq., Shanakiel House, county of Cork
John Carmichael, Esq., Riverstown House, county of Cork 2
James Carnegie, Esq., Northeak, county of Cork
James Little, Esq., R.M., Dunmanway, county of Cork

STANDING COUNSEL.—The Recorder of Cork, and J. H. Reeves, Esq., Barrister-at-Law.
SOLICITOR.—T. Jameson, Esq., 4, South-mall, Cork, and 12, Talbot-street, Dublin.
LONDON SOLICITORS.—Messrs. Wilde, Rees, Humphrey, and Wilde, College-hill, London.
SECRETARY.—William Connell, Esq., 80, South-mall, Cork.
TREASURER.—The Provincial Bank of Ireland, Cork.

In laying before the public a prospectus of the Southern and Western Mining Company of Ireland, the provisional committee feel that no lengthened statement is required to create a full appreciation of the advantages which must be derived from the development of the mineral wealth of the southern and western districts of Ireland, which the most eminent authorities acknowledge to equal, if not exceed, in metalliferous deposits and mineral richness the most favoured mining districts in England.

Independent of the acknowledged abundance of ores, no country in the world presents to the miner greater facilities and advantages for working mines than those which present themselves in the southern and western portions of Ireland.

It is a well-known fact, that the mines in England, with few exceptions, are from their position incapable of being worked, and are seldom commenced without the aid of both steam and horse power, either of which occasions at once a large outlay of capital, and entails a heavy annual expense, which cannot be avoided, and yet, notwithstanding these heavy drawbacks, many of the Cornish mines, and those in other parts of England, are paying to the adventurers from £50 to £2000 per cent. on the capital invested. The prices of shares in the *Mining Journal* fully testify to this fact.

The proximity to the sea of the principal mines in the southern and western districts of Ireland, admits of the ores being shipped and the materials landed without incurring the heavy expense of inland carriage, to which all the mines in England are subject. The elevation of the setts above the sea level varying from twenty to fifty fathoms (and rising on the inland course of the lodes in many instances to 100 fathoms), affords opportunities of working effectively by means of deep levels, and renders quite unnecessary the expensive auxiliaries of either steam or horse power, while the "adits or levels" allow the water to flow off from the mine, and at the same time the ore and waste to be trammed out to the dressing floors. To any party acquainted with mining operations, these advantages will appear obvious, and will readily be admitted to be equal to a saving of from 20 to 40 per cent. in the working of mines, when compared with those which have not the advantage of similar position.

Under such favourable circumstances, while the mines of the southern and western portion of Ireland are admitted by the most eminent authorities to equal, if not exceed, the most favoured mineral districts in England, and aided, as ours are, by every natural facility for their development, together with a ready and abundant supply of surface water and cheap labour, is it not reasonable to expect that we shall have at least an equal return for the outlay of capital as is yielded by the most prosperous mines in England?

To the landed proprietors in the districts were operations are proposed to be carried on, the undertaking presents advantages that cannot be too highly appreciated. The circulation of capital, the extensive employment, the increased demand for agricultural produce, and the opening up of wild and hitherto unprofitable districts, must necessarily disseminate an extent of prosperity in which the proprietors of the soil will have a full and immediate participation.

It may, perhaps, be said by some parties that mining in Ireland has hitherto been a failure. Several mines have commenced without either experience to guide them, or capital to follow up the undertaking, and hence the failures that may be noted; but where capital has been applied under skilful and experienced mining agents and careful managers, the most marked success has resulted—witness the Berehaven and Knockmahon Mines. The Coaheen Mines, situated on Skull Harbour, in the west of the county of Cork, commenced work about six years ago, and has during that period sold at Swansea over £17,000 worth of copper ore, while the capital subscribed did not exceed £3500. The last small cargo from that mine sold on the 23d ult., produced a sum of £1099, or an average of over £20 per ton.

Professor Kane's invaluable work, *The Industrial Resources of Ireland*, fully corroborates the statements set forth in this prospectus, as to the value of the southern and western districts of this county in a mineral point of view.

The promoters of this important undertaking are determined by a careful supervision of the expenditure to insure that economical management so essential to the success and prosperity of the company, and which has already marked in so prominent a manner those mining operations in the west of this county, with which they have been individually connected. Since the preliminary announcement of the West Carbery and County of Cork Mining Company, now changed and registered as the "Southern and Western Mining Company of Ireland," appeared before the public, applications have been received for over 9000 shares; an early application will, therefore, be necessary from those who propose to become shareholders, as the list will close on the 20th day of January next, when the allotment will take place.

Applications in the following form will be received by the solicitor, Thomas Jameson, Esq. No. 4, South Mall; or by the secretary, William Connell, No. 80, South Mall.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the Southern and Western Mining Company of Ireland.

Gentlemen,—I request you will allot me ..... shares, of £15 each, in the above undertaking; and I agree to accept the same, and pay the deposit of £3 per share thereon, or upon such number as you may appropriate to me, and to sign the necessary deeds when required. Dated this ..... day of ..... 184 .

Name in full .....
Profession or trade .....
Place of residence .....
Place of business .....
Name of referee .....

SOUTHERN AND WESTERN MINING COMPANY OF IRELAND.

Capital £325,000, in 15,000 shares, of £15 each.—Deposit £3 per share. 3

OFFICE, 80, SOUTH MALL.

The provisional committee of the Southern and Western Mining Company have directed me to inform the applicants for shares in this important undertaking, that they have concluded a most advantageous arrangement, for the purchase of the Gurtavallig Copper Mines, situated on the south-eastern shore of Bantry Bay, together with the whole royalty of the setts, in which that most promising mine has been discovered, and where operations have been actually commenced. This circumstance has obliged the provisional committee to increase the number of shares, from *ten* to *fifteen* thousand, in consequence of the Gurtavallig proprietary having stipulated for the purchase of 5000 shares at par. I am therefore, directed to apprise you of this very important arrangement being entered into which will enable the company to commence immediate operations on one of the most promising mines in Ireland), that you may be at liberty to withdraw or confirm your application.—The allotment of shares will take place on the 20th of January next.

By order of the board of directors,
Cork, Dec. 18, 1845. WM. CONNELL, Secretary.

THE PATENT SAFETY FUSE,
FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall. 4

OXFORD, THAME, HIGH WYCOMBE, AND UXBRIDGE JUNCTION RAILWAY.—Notice is hereby given, that NO FURTHER APPLICATIONS for SHARES in this company will be received after the 27th inst.

43, Moorgate-street, Dec. 17. By order, R. MORTON CALEY, Sec. 5

OXFORD AND SALISBURY DIRECT RAILWAY.—The committee of management beg to announce that, in compliance with the applications and suggestions of several gentlemen of experience, they have instructed the several bankers named in their letters of allotment to continue to receive the preliminary deposits from this time until the 7th of January next, in order that those parties to whom shares in this company have been allotted may consult their own convenience, by paying the first deposit at the present time, or paying the whole deposit on or before the 7th of January next. By order of the board,

Moorgate Chambers, Moorgate-street, Dec. 19, 1845. Z. HUBBERSTY, Sec. 6

ROYAL NORTH OF SPAIN RAILWAY COMPANY.—At the General Meeting of the shareholders of the above Company, held this day, at the London Tavern, Bishopsgate-street, conformably with public advertisement,

It was resolved—

"That the report of the directors, presented to the meeting, be received and adopted, and that the Royal North of Spain Railway Company be forthwith dissolved."

In pursuance, therefore, of the above resolution, all holders of scrip certificates of shares issued in England and France, and numbered from 18,331 to 55,000, are hereby requested to bring the same to this office, between the 30th and 31st inst., when, after such scrip has been left two clear days, they will receive in exchange a cheque for £1 per share, and a certificate, which will entitle the holder to the further advantages stated in the directors' report, and to a proportionable return from whatever funds may remain for ultimate distribution. THOMAS S. CUTBILL, Secretary.

1, Royal Exchange-buildings, Dec. 19, 1845.

Shareholders may receive the printed reports of the directors and engineers, at the office. 7

THE PATENT GALVANISED IRON COMPANY call PUBLIC ATTENTION to the following, amongst other GREAT WORKS executed with their patent article:—

The ROOFS of the NEW HOUSES OF PARLIAMENT, at Westminster.
The SLIPS, or SHEDS, for building "first-rates," in the ROYAL DOCKYARDS, at Woolwich, Portsmouth, Deptford, &c. (the latter visible in passing down the Thames, and is an object of great beauty, having a centre span of eighty-two feet). The Timber Sheds, and other buildings, in the Royal Dockyards, are also being roofed and constructed with this fire-proof material.
The BUOYS and other MARINE WORKS of the Honourable Corporation of the Trinity House have for two years been CONSTRUCTED with the Galvanised Iron, which resists effectually the action of sea water.
The celebrated ELECTRIC TELEGRAPHS of Messrs. Cooke and Wheatstone are CONSTRUCTED exclusively with the company's Galvanised Wires, &c.
And this indestructible iron, under all common influences—viz., sea water, saline or damp atmospheres, is admirably adapted for
ROOFING in all climates, being Fire, Hurricane, and Lightning proof, if a continuous communication be formed with the earth by Galvanised Iron Spouting attached to the roof.
DOCK-WORK, chain or wire rope bridges, wire fences, fire proof buildings, corrugated doors, shutters, greenhouses, conservatories, and an endless variety of purposes.
Roofs of gas works and chemical manufactories.
Ship-building purposes—viz., blocks, bolts in lieu of copper, and knees. 8
For chain rigging, wire rigging, and sheathing, it is extensively used, and the following CERTIFICATE, amongst many others, is annexed:—

Lloyd's Register, London, February 7, 1845,
2, White Lion-court, Cornhill.

The undersigned surveyors to this society did, at the request of Messrs. Malins and Rawlinsons, examine the Patent Galvanised Iron Sheathing upon the bottom of the brig *Mary Stewart*, lying in Messrs. Curling, Young, and Co.'s dry dock, Limehouse, and lately returned from a voyage to the island of Ichaboe, on the coast of Africa, and found it unbroken and perfect throughout the vessel's bottom, and no appearance of corrosion or oxide of iron upon its surface. The iron that had been exposed by puncturing the nail holes had become coated with zinc—the sheathing was nearly clean, and free from marine grass and animalculæ. It appears to have answered very well during the before-mentioned voyage, and the ship has sailed without it being found necessary to do any repairs to it.

PETER COURTENAY,
I. H. RITCHIE,
JAMES MARTIN, } Lloyd's Surveyors.

The company are prepared to supply all articles required, or execute work of every description.

WORKS—London, at Millwall, Poplar, near West India Docks; Staffordshire, Phœnix and Lea Brook Iron-Works—from which corrugated iron and every description of iron, galvanised or otherwise, can be supplied; also, from the South Wales Works, near Bridgend, Glamorganshire.

OFFICE—3, Mansion-house-place, London.

CAUTION AND NOTICE.

This GREAT PATENT, like every good one, is invaded, and, by the law's delays (and its miserable state as regards the interests of patentees), the parties are able to evade the consequences some short time longer. The same thing has occurred with other patents. In Neilson's Hot-Blast Patent the invasion went on for years: but one firm only had at last to pay upwards of (£120,000) ONE HUNDRED AND TWENTY THOUSAND POUNDS PENALTIES. BUYERS as well as SELLERS are LIABLE, and the PATENTEES will PROCEED AGAINST all PARTIES who INVADE this—one of the most IMPORTANT INVENTIONS ever brought into use.

Actions are proceeding against Messrs. Morewood and Rogers, Messrs. Walker (Gospel Oak), and many others.

The company take this opportunity of giving the most unequivocal contradiction to the advertisement issued by Messrs. Morewood and Rogers on 8th August.

PATENT GALVANISED TINNED IRON.
MOREWOOD and ROGERS' PATENT.

The PATENTEES beg to call the attention of the PUBLIC to the ABOVE METAL, which is being USED extensively by the LORDS COMMISSIONERS of the ADMIRALTY, the BOARD OF ORDNANCE, and OTHER PUBLIC BODIES,

FOR ROOFING AND OTHER PURPOSES. 9

The large WAREHOUSES and SHEDS in the LIVERPOOL DOCKS have had the ZINC with which they were formerly covered STRIPPED OFF, for the purpose of being COVERED WITH IT; and the NEW DOCK WAREHOUSES of that city are likewise being COVERED WITH THIS METAL.

It is peculiarly ADAPTED for RAILWAY STATIONS, as forming a light, strong, and incorrodible covering.

This PROCESS is the ONLY ONE by which the QUALITY of the IRON is PRESERVED, instead of being injured; and it is, therefore, so very malleable, that it may be worked up with the greatest ease into articles of all descriptions.

Further information may be obtained on application at the WAREHOUSE
No. 9, STEEL-YARD UPPER THAMES-STREET

THE PATENT GALVANISED IRON COMPANY.—CAUTION.—The public are cautioned against giving credit to the mis-statements put forth by the Galvanised Iron Company in their advertisement.

The ONLY ACTION proceeding in regard to this Patent is one, NOT AGAINST MOREWOOD AND ROGERS, OR ANY OTHER PARTY CONNECTED WITH THEM, BUT A WRIT OF *SCIRE FACIAS* AGAINST THE COMPANY'S PATENT FOR ITS CANCELLATION.

Nothing can be more unfortunate than the comparison between this Patent and that of Neilson's, which was held by the jury to be valid, whereas THAT OF THE GALVANISED IRON COMPANY WAS, AFTER THREE DAYS' TRIAL, FOUND, UPON THEIR OWN EVIDENCE, TO BE INVALID. 10

They assert that their Patent is being invaded—this we entirely deny; and to show the folly of the charge, the working of it was found by the jury to be impracticable. No one—not even they themselves—ever have, or ever will be able to work it.

In working as they now do, they have ADOPTED PART OF OUR PROCESS, specified in our patent, WITHOUT OUR LEAVE OR LICENCE.

With regard to delay, it has been entirely on their part, as the records of the courts will prove. They have availed themselves of every opportunity to hinder and delay the *scire facias*, now proceeding, by applications for time, &c.; and, finally, by putting in a plea, which their solicitor swore he believed, to be necessary for the defence of their patent from cancellation, but which the Lord Chancellor, on Monday last, refused to admit, and dismissed their appeal with costs.

MOREWOOD AND ROGERS,
Patentees of Galvanised Tinned Iron.
August 29, 1845. Warehouse, 9, Steel-yard, Upper Thames-street.

PATENT GALVANISED IRON COMPANY.—NOTICE.—This patent was decided by the jury, in Patteson v. Holland, tried in the Common Pleas in February last, to be *invalid*, and their verdict has not been set aside. The delay in actually cancelling the patent by the *scire facias* issued for that purpose, is solely ascribable to the patentees resorting to frivolous and dilatory measures for postponing the proceedings—thus showing that they well know how such proceedings must terminate. 11

BY HER MAJESTY'S ROYAL LETTERS PATENT.

SMART'S ELLIPTICAL CONVEX METALLIC PADDLE FLOATS, FOR PROPELLING STEAM-SHIPS.—The very great superiority of this invention over the common float, in *all points*, having been fully proved by its use on various steamers of from 90 to upwards of 200-horse power—and applications being made for licensing several iron steamers, from 70 to 300-horse power, the patentee confidently recommends it to the Government and the public generally.

Its superiority consists, in beauty of appearance, stability, durability, its property of greatly reducing vibration and undulation, inexpensiveness, powerful agency in checking a ship in chance of collision—and what is of the greatest consequence, giving an immense increase of speed. All these must have a powerful influence, not only on steam proprietors, but more especially on the minds of the steam-travelling public.

These Floats can be easily applied to any wheel.

Applications for license (for which a fee of 10s. per horse-power is charged) to be made to the patentee, Mr. Robert Smart, 5, Grenville-place, Hotwells, Bristol, or his agents. 12

RYE AND THOMAS, MINE AGENTS AND DEALERS IN STOCKS, RAILWAY AND OTHER SHARES,
80, OLD BROAD-STREET, LONDON, AND AT LISKEARD, CORNWALL. 13

JAMES LANE, SHARE AGENT,
HALL OF COMMERCE, LONDON. 14

THOMAS DUNN, MINING AGENT, SHARE BROKER, AND GENERAL INSPECTOR,
TAVISTOCK, DEVONSHIRE. 15

WILLIAM TRENERY, DEALER IN RAILWAY AND MINING SHARES.—ESTABLISHED TEN YEARS.
OFFICES, No. 50, THREADNEEDLE-STREET, LONDON. 16

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC SALE OF RAILWAY SHARES, &c., are HELD, at the Hall of Commerce, Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orders received until Four o'clock of the day prior to sale.—London, Dec. 26, 1845. 17

IRON TRADE.—WANTED, a PARTNER, who can command about £7000, to EXTEND a FORGE, now in full operation.—Address "A. B.," care of W. W. Dorrington, Esq., 11, Chapel Walks, Liverpool. 18

TO PERSONS DESIROUS OF ENTERING INTO THE IRON TRADE.—WANTED, a PARTNER, that can advance £15,000, for which the works can be secured to him; £11,000 will be required to pay off the mortgage now upon the works, and the remains will be ample to carry on the trade. The works are nearly new, and were erected at a cost of upwards of £20,000, and are capable, at a trifling expense, of making 200 tons of bars, or rails, per week, exclusive of boiler plates, sheets, &c.; the situation is good for the supply of coals and pig-iron, and the advertiser would undertake the management.—Apply to Mr. E. Bagnall, Sand Pits, Birmingham. 19

TO ENGINEERS, MILLWRIGHTS, &c.—A particularly eligible opportunity now presents itself to any person or persons desirous of entering into an ESTABLISHED BUSINESS in this LINE, in a large market town in Yorkshire, in the midst of a densely-populated manufacturing neighbourhood, where at present little competition exists. The concern includes an excellent foundry, is convenient both for water and land carriage, is at present in full work, and in the hands of parties who are anxious to retire from the business. Satisfactory reasons for which and other particulars, may be known, by application to the owners, Messrs. Armitage and Kaye, tinmerchants, Huddersfield. 20

CONSOLIDATED COPPER MINES OF COBRE ASSOCIATION.—Notice is hereby given, that a HALF-YEARLY GENERAL MEETING of the proprietors of this association will be HELD, in conformity with the Deed of Settlement, at the office of the company, 26, Austinfriars, on Monday, the 19th day of January next, at One o'clock precisely. On that day two directors—viz., Robert Passenger and George Probyn, Esqs., and one auditor, Alexander Druce, Esq., will go out of office by rotation, but are immediately re-eligible, and are candidates for re-election.

It is necessary that parties intending to offer themselves as candidates for the direction and auditorship should leave notice of such their intention with the secretary, at the office of the company, 26, Austinfriars, at least fourteen clear days before the day of election.

By order of the court of directors,
26, Austinfriars, Dec. 23, 1845. WM. LECKIE, Secretary. 21

ROYAL SANTIAGO MINING COMPANY.—The directors hereby give Notice, that the HALF-YEARLY GENERAL MEETING of the shareholders will be HELD at the office of the company, on Wednesday, the 7th of January next, at Twelve for One o'clock precisely, when the directors will make their report and consider of a dividend.
38, Broad-street-buildings, Dec. 19, 1845. 22

ST. JOHN DEL REY MINING COMPANY.—Notice is hereby given, that the SEVENTH HALF-YEARLY DIVIDEND, being FIVE SHILLINGS per share on the shares in this company, will be PAID on or after the 9th day of January, 1846, between the hours of Eleven and Three.—Forms for claiming the dividend may be obtained at the company's office, and must be left three clear days for examination previous to payment. GEORGE D. KEOGH,
8, Tokenhouse-yard, Lothbury, Dec. 15, 1845. Secretary. 23

MEXICAN AND SOUTH AMERICAN COMPANY,
10, New Broad-street Mews, Dec. 22, 1845.—The TWELFTH DIVIDEND of FIVE SHILLINGS per share on the shares in this company, will be PAID on or after the 19th day of January, 1846, between the hours of Eleven and Three.—Forms for claiming the dividend may be obtained by the shareholders on application at the office.
H. W. SCHREIDER, Managing Director. 24

NOTICE TO THE PROPRIETORS AND SHAREHOLDERS OF MINES, SMELTING-WORKS, &c.

Messrs. MITCHELL and FIELD beg to inform the PUBLIC, that they have REMOVED from No. 5 A to No. 23, HAWLEY-ROAD, KENTISH TOWN, where they have erected a spacious LABORATORY, fitted expressly for the performance of all OPERATIONS CONNECTED WITH MINING.—Practical instruction to gentlemen in Assaying, Mineral Analysis, and Manufacturing Chemistry in general.

Assays and Analyses conducted as usual. 25

All communications to be addressed to Messrs. Mitchell and Field, assayers, No. 23, Hawley-road, Kentish Town.

SMOKE NUISANCE—W. & J. GALLOWAY, ENGINEERS, MANCHESTER, beg respectfully to introduce to the notice of manufacturers, &c., their REGISTERED STEAM-ENGINE BOILER, having for its object the removal of the above nuisance, now so loudly complained of and so desirable to abate, and which, by this construction of boiler, is completely attained, independently of any additional air apparatus or attention from the fireman.—Descriptive circulars may be obtained by application to W. and J. Galloway, Patent River Works, Manchester. 26

SHORT LINE OF RAILWAY.—TO BE SOLD.—The proprietors of PROSSER'S PATENT GUIDE WHEELS having CEASED to RUN the TRAINS on WIMBLEDON COMMON, have determined to SELL the LINE, together with the ENGINE, CARRIAGE, TRUCKS, and PLANT: the length of the line is about 1¼ miles—the engine is in complete working order, 12-inch cylinder, 18-inch stroke. This railway is admirably adapted for any person in want of a short line, and may be removed at a trifling expense, being within a mile of the Thames, and its mode of construction so simple (having no bolts or iron, except a small portion laid with iron rails), that it can be taken up and relaid with great ease.—For terms, &c., apply to Mr. George Hadley, 36, New Broad-street, London; or Mr. C. Capper, C.E., Broad-street, Birmingham. 27

LONDON AND BIRMINGHAM RAILWAY.—NOTICE.—The following reductions in the Fares of Passengers, and the Rates for Parcels, between London, Birmingham, and Liverpool, will take place on the 1st January, 1846:

LONDON TO LIVERPOOL.

FARES OF PASSENGERS.

By express and select trains	from 47s. to 45s.
By other trains, first class	40s. to 37s.
Ditto second class	31s. to 27s.

FROM LONDON TO BIRMINGHAM, THE REDUCTIONS WILL BE—

FARES OF PASSENGERS:

By Express and select trains, first class	from 27s. to 25s. 28
By mixed fast ditto ditto	23s. to 20s.
Ditto ditto second ditto	17s. to 14s.

The fares for intermediate distances will be reduced in proportion.

The rates for small parcels, not exceeding 12 lbs. weight, will be reduced between London and Liverpool from 2s. 6d. to 2s.; and between London and Birmingham, from 1s. 6d. up., and 1s. 3d. down, to 1s. each way. By order,
Office, Euston Station, Dec. 24, 1845. R. CREED, Secretary.

WEAR VALLEY RAILWAY.—FIRST CALL, FIVE POUNDS PER SHARE.—Notice is hereby given, that, in pursuance of a resolution of the board of directors, the proprietors of shares in this company are required to PAY a CALL of FIVE POUNDS per share on their respective shares, on or before Monday, the 12th day of January next, to Joseph Pease, jun., Esq., the company's treasurer, or to his account, at Messrs. Drewett and Fowler's, London.

By order of the board,
Railway Office, Darlington, Dec. 17, 1845. THOS. MACNAY, Secretary. 29

WEST FLANDERS RAILWAYS.—Notice is hereby given, that the FIRST HALF-YEARLY GENERAL MEETING of the proprietors in this undertaking will be HELD at the London Tavern, Bishopsgate-street, London, on Tuesday, the 13th day of January, 1846, at One o'clock precisely, on the general business of the company.
(Signed) W. P. RICHARDS, President.
Office, 11, King William-street, City, Dec. 16, 1845. 30

WEST FLANDERS RAILWAYS COMPANY.—Notice is hereby given, that INTEREST, at the rate of 3 per cent. per annum, on the paid-up capital in this undertaking, calculated from the dates of the payment of each instalment (viz., June 30 and September 30) to the 31st day of December, 1845, will be PAYABLE at the offices of the company on or after Thursday, January 1, 1846.

It is necessary that the certificates for shares should be left at the office three clear days, for which a receipt will be given, and, when called for, a warrant for the amount of interest will be delivered. WILLIAM JESSE, Secretary.
Office, 11, King William-street, Mansion-house, Dec. 16, 1845. 31

ON THE ANTHRACITE AND BITUMINOUS COAL FIELDS IN CHINA—THE SYSTEM OF MINING, AND THE PRICES OF COAL AND LABOUR IN ITS PRODUCTION AND TRANSPORTATION TO PEKIN.

BY RICHARD C. TAYLOR, PHILADELPHIA.

We have seen the recent announcement of the sailing, from hence, of a vessel containing 308 tons of Pennsylvania anthracite, destined for Hong-Kong, in China. Some very natural speculations have arisen from this circumstance, as to the probability of that country furnishing a market for American anthracite. As no details accompany the statement alluded to, we are not in possession of any material facts whereby an estimate can be formed of the probable success of the undertaking, in a commercial sense; and we are not sure but the coal may have been employed for convenience merely, as ballast. In the East Indies various depots of European coal have been established, for the service of the British Government steamers. This fuel, for the most part, it is understood, consists of the anthracitous and partially bituminous coals of South Wales, of course obtained at great expense. It appears that 5000 tons of English coal, at a freightage of about 2*l.* per ton, are annually imported into Bombay, for the Company's steamers. Bituminous coals have been derived from much less distant sources; among which the Burdwan coal-field, in the vicinity of Calcutta, may be named. Mergui Island, also, in the Bay of Bengal, has lately furnished some steam coal to Singapore. The steam-ships on the China seas, during the war with that country, were supplied from these various sources.

I do not propose to discuss the profitableness, or otherwise, of a Chinese market for our American anthracite. But as during the process of collecting statistical information for a proposed volume on "the geological and geographical distribution of coal and other mineral combustibles," some notes reached me, of an interesting character, which are not generally accessible to the majority of readers, with relation of the Chinese coal-fields, it has struck me that a portion of these details, in an abridged form, might be just now acceptable, particularly as the intercourse with that country is on the increase. I venture even to omit, for the present, the authorities for the facts I shall have to communicate; reserving them in detail for the volume adverted to. It must, nevertheless, be premised that to the Jesuit Fathers, the French Missionaries who were permitted to reside at Pekin during the 18th and preceding centuries, we are indebted for details of the highest interest, not alone on this subject, but on many other objects of philosophical inquiry in that little-known region.

It is probable that coal was discovered, and was in common use in China, long before it was known in the western world. It is mentioned by a noble traveller of the 13th century, as abounding throughout the whole province of "Cathay," of which Pekin is the capital, "where certain black stones are dug out of the mountains, which stones burn when kindled, and keep alive for a long time, and are used by many persons, notwithstanding the abundance of wood."

The good missionaries were fully capable of describing the coals which were supplied to Pekin, since they there erected a furnace or stove, in which they experimented on the properties of those combustibles; particularly with reference to the ordinary domestic uses, and for the warming of apartments and the purposes of their laboratory. Among the people of Pekin, three kinds are in use.

1. That employed by the blacksmiths. It yields more flame than the other qualities; is more fierce, but is subject to decrepitate in the fire; on which account, probably, the blacksmiths use it pounded in minute particles.

2. A harder and stronger coal used for culinary purposes, giving out more flame than the other sorts so employed; it is less quickly consumed, and leaves a residuum of gray ashes. There are several gradations of these. The best are hard to break, of a fine grain, a deep black colour, soiling the hands less than the others. It sometimes is sufficiently siliceous to give fire with steel. Others have a very coarse grain, are easily broken, and make a bright fire, leaving a reddish ash. Another species crackles, or decrepitates, when first placed on the fire; and falls down, almost entirely, in scales, which close the passage of the air, and stifle the fire.

3. A soft, feebly burning coal, giving out less heat than the 2nd class; consuming more quickly, it breaks with greater facility, and in general is of deeper black than the sorts previously mentioned. It is commonly this description, which, being mixed with coal dust and a fourth part of clay, is employed to form an artificial and economical fuel. This being moulded in the form of bricks and balls are sold in the shops of Pekin. Wagon loads of coal dust are brought to that city for this sole purpose. The coal merchants have also an intermediate quality, between the classes 2 and 3.

We cannot, in this place, recite the numerous details which are furnished by these intelligent Fathers. Suffice it to add, that nearly the whole of the properties, and applications are now in every-day use in the United States, and are familiar to all. They are, in fact, the natural results suggested by qualities possessed in common by the combustibles of remote parts of the same globe. Even the modern method of warming all the apartments of our dwellings, which we view as the result of superior practical and scientific investigation, was in use with very little deviation, centuries ago, by the Chinese. Many a patented artificial fuel compound both in Europe and America, has been in practical operation in China, at least a thousand years.

4. ANTHRACITE.—Another description of coal abounding about thirty leagues from Pekin, but which was not then in such general use there as the other kinds, is called by the Chinese Che-tan. Che means a stone, but tan is the name they give to wood charcoal. Therefore, according to the genius of the Chinese language, this compound word signifies a substance resembling or having the common properties of stone and charcoal. There can be little difficulty here, in recognising the variety of coal which, in our day, has been denominated anthracite, a compound word of similar meaning.

The Chinese *glance coal* forms a remarkable exception to the unfavourable conclusion prevailing against Oriental coal; and, according to more recent authority than those we before cited, deserves to rank at the head of the list, in respect of its purity as a coke; although, in specific gravity, it does not come up to the character of the Pennsylvania or Welsh fuel; neither has it the spongy texture which contributes much to the glowing combustion of the latter.

So late as 1840, a Russian officer has described the coal formations of the interior, as occupying the western mountain range of China, in such abundance that a space of half a league cannot be traversed without meeting with rich strata. The art of mining is yet in its infancy among the Chinese; notwithstanding which, coal is thought to be at a moderate price in the capital. Anthracite occurs in the western range of mountains at about a day's journey, or about thirty miles only, from Pekin. The coal formation is largely developed, in which thick beds of coal occur. They appear to be of various qualities. Some of this coal, occurring in shale beds, is singularly decomposed, and its particles have so little cohesion, that they are almost reduced to a state of powder. Beneath these coal shales are beds of ferruginous sandstone, and below those occur another series, consisting of much richer seams of coal than the upper group.

In this range are seen also both horizontal and vertical beds of conglomerate, accompanied by seams of coal, which have the conglomerate for the roof, and diorite or greenstone for the floor. As might be expected, this coal very much resembles anthracite. It is shining, of compact texture, difficult to ignite, does not flame in burning, or give out any smoke. Its substance is entirely homogeneous. Every thing respecting it leads to the belief that there had been a great development of heat at the period of its formation, or subsequently. The horizontal coal beds are the most important and valuable, and are denominated large; but no greater thickness than three and a half feet is quoted. The blacksmiths and those who work in copper, prefer this coal, on account of the intense heat which it gives out. Throughout the whole of this mountain range may be continually seen the outcrops of this combustible, where they have never, as yet, been touched by the hand of man.

In those parts of China where wood is very dear, coal is worked on a great scale for the Pekin market; but the process of mining is very little understood by those people, who excel in the preparation of charcoal.

COAL IN OTHER PARTS OF CHINA.—The missionaries and others inform us that coal is so abundant in every province of China that there is, perhaps, no country of the world in which it is so common. The quays at Nankin are stored with the finest native coal. Some of the coal which was brought down to the coast, from the Pekin country, to the Gulf of Pe-tchee-lee, was anthracite, partaking of the character of plumbago or graphite. Coal, apparently of the brown coal species, exists extensively in the direction of Canton; while all the coals seen on the Yang-tse-kiang river, south of Nankin, resembled cannel coal. Nearer to Canton, it possessed the comparatively modern character of brown coal. It was abundantly offered for sale in the different cities through which Lord Amherst's embassy passed, between Lake Po-yang-how and Canton, and the boats were largely supplied with it. It is there obtained by means of pits, like wells; and we infer that, like nearly all the brown coal deposites, the beds were horizontal, and at no great depth. A sulphurous coal, interstratified with slate, and in the vicinity of red sandstone, also prevails towards Canton. Thus, therefore, we possess evidence, the main object which this communication was designed to exhibit, that extending over large areas in China, are beds of tertiary or brown coal, of cannel coal, a dozen varieties of bituminous coal, of anthracite, glance coal, and graphitic anthracite; all of which, for ages, have been in common use in this remarkable country; and have been there employed for every domestic purpose known to civilized nations of all times; including gas lighting, and the manufacture of iron, copper, and other metals.

MODE OF MINING COAL IN CHINA.—It might be expected that in China, where most of the practical arts have, from time immemorial, been carried on with all the perseverance of that industrious people, the operation of mining coal would be conducted with some regard to science, in relation to sinking, draining, and extraction. We have, however, good authority, especially in regard to the environs of Pekin, for stating that the process is still in a very imperfect state. Machinery there to lighten labour is unknown. They have not even an idea of the pumps indispensable to draw off the water. If local circumstances allow, they cut drainage galleries; if not, they abandon the work whenever the inundation has gained too far upon them. The mattack and shovel, the pick and the hammer, are the mining instruments—the only ones, in fact, which the Chinese employ in working the coal. The water of the mine is emptied by the slow process of filling small casks, which are brought up to the surface by manual labor. Vertical shafts are not used. In working horizontal coal seams, the timbering is expensive, and the materials cost about 2 copecs per pound,—$8 50 per ton—English wood being sold by weight in China.

The coal, when mined, is put into baskets, and drawn upon sledges, which are raised to the surface by mannal strength. Each basket contains about three pouds of coal, and one man can raise about eight baskets in a day. This is equivalent to 1032 Russian pouds, or to 12 cwt. English, per day. The miners wages are at the rate of 30 copecs a basket; which is equal to 240 copecs [copper currency,] or 46 cents of United States currency, per day; being $0 76 U. S., per ton.

PRICES AT PEKIN.—At the pit's mouth, this coal is sold for 60 copecs per poud,—$4 63 per ton of 20 cwt. It is then conveyed on the backs of mules through the mountains, and thence on camels to Pekin, where the price is 1½ rouble,—1½ francs,—29 cents United States, per poud; which, if our calculation be correct, is equal to $11 60 United States, or 2*l.* 8*s.* 3*d* per ton of 2240 pounds English. We perceive, therefore, that the best of fuel is expensive at Pekin, and hence the necessity for resorting to the artificial compounds and substitutes to which we briefly alluded. There is, however, a kind of coal sold in that city at a much lower price, particularly when it is mixed with one-half of coal dust. This coal, in 1840, sold for one rouble per poud, which is at the rate of $7 75 = 1*l.* 12*s.* 3*d.* per ton. It is of indifferent quality, however; giving out but little heat, and is quickly consumed. The compound fuel, consisting of coal dust and clay, is still prepared after the mode described by the missionaries last century; but its use is chiefly confined to the indigent classes.

COAL GAS LIGHTING IN CHINA.—Whether, or to what extent, the Chinese artificially produce illuminating gas from bituminous coal, we are uncertain. But it is a fact that spontaneous jets of gas, derived from boring into coal beds, have for centuries been burning, and turned to that and other economical purposes. If the Chinese are not manufacturers, they are, nevertheless, gas consumers and employers, on a large scale; and have evidently been so, ages before the knowledge of its application was acquired by Europeans. Beds of coal are frequently pierced by the borers for salt water; and the inflammable gas is forced up in jets, twenty or thirty feet in height. From these fountains the vapour has been conveyed to the salt works in pipes, and there used for the boiling and evaporation of the salt: other tubes convey the gas intended for lighting the streets and the larger apartments and kitchens. As there is still more gas than is required, the excess is conducted beyond the limits of the saltworks, and there forms separate chimneys or columns of flame.

One cannot but be struck with the singular counterpart to this employment of natural gas, which may be daily witnessed in the Valley of the Kanawha, in Virginia. The geological origin; the means of supply; the application to all the processes of manufacturing salt, and of the appropriation of the surplus for the purposes of illumination, are remarkably alike, at such distant points as China and the United States. Those who have read, even within the present month, the account of the recent extraordinary additional supply of gas, and the services it is made to perform at the Kanawha saltworks, must be impressed with the coincidence of all the circumstances with those which are very briefly stated in the previous paragraph, in relation to China. In fact, the parallel is complete. To the coals and combustible minerals of China, I cannot further advert here. But what a conviction irresistibly presses upon the mind, as to the incalculable utility of the railroad system, and coal mining improvements in such an empire! If ever there were concentrated at one point, all the circumstances especially and unequivocally favourable to that system, and imperiously calling for improvements of the character suggested, it seems to be presented in the case of the city of Pekin. Here, with its enormous population of 1,500,000 souls, it is situated only at a day's journey—computed at thirty miles—from an immense region of coal, comprising several varieties. Yet its inhabitants cannot purchase the best qualities of this coal, brought from the mountains on the backs of mules and camels, under $11 60 per ton, and the very worst for less than $7 75 per ton. Without making unnecessary or invidious comparisons, it might not unreasonably be suggested, that a Pekin railroad, in connecton with the coal mines, would be a far more profitable enterprise in its results, than the transportation of American coals to China. I will only add one circumstance, which had nearly escaped me. Borneo, "the largest island in the world," which is only 20 deg. due south of Canton, has lately come into repute for the great quantity of coal which it contains, not only accessible to the ships along the coast, but extensively occurring in the mountains of the interior. Much information has also been acquired from the natives; and the facts which are already elicited are regarded as of considerable importance, in respect to the facilitating the steam navigation of the China seas.

Philadelphia will, of course, have her share in the enlarged commercial intercourse with China. Would it, then, be asking too much of those who are personally interested in this improving trade, to communicate any additional facts, which are either unknown to, or have been omitted by, the author of these scanty notes?

Note.—The prices and admeasurements, which are quoted in the foregoing article, were reduced to the United States and English currencies and measures, from the Russian, as furnished by the engineer Kovanko; who, in like manner, converted them into the Russian from the Chinese standards. In consequence of this triple conversion of standards, additional care has been taken to avoid error in these calculations.

CLARIDGE'S ASPHALTE.—As much misapprehension exists as to the inflammability of this substance, and its consequent danger when used for the covering of roofs, an experiment was tried last week on the works, at Stangate, tending to prove that not only is it not dangerous, but that it extinguishes, rather than increases, the fire. A small brick building, about four or five feet square, and three feet high, representing a house, with a wooden roof, covered with their asphalte roofing cement, was filled with shavings, wood, and other combustibles, and then set on fire; the whole burnt most fiercely, and, when the roofing timbers had become too weak to bear the covering, it fell in the form of a crumpled sheet, completely smothered the rapidly burning wood, and prevented all further combustion; being perfectly water-proof, and easily repaired, it is exceedingly well adapted for flat roofs, or for paving of laundries, stables, cellars, &c. &c.

CONSUMPTION OF SMOKE.—A simple, but effectual, form of furnace for steam boilers has been registered by Messrs. Galloway, of Knot Mills, Manchester, and by which, it is stated that, the so-long desired object of preventing the emission of volumes of carbon is completely effected without valves or air pipes of any description. The boiler adopted is the ordinary circular one, the water completely surrounding the fire bars and flue. In this are two distinct sets of fire bars with their bridges, behind these one flue only tapers off to a size sufficient for the conveyance of the vapours, and, just behind the bridge, a perpendicular tube connects the upper and lower portions of the water through the most powerful part of the heat, and thus causing a highly useful additional heating surface. By this arrangement, and by firing each grate alternately, the black smoke from the newly made or stirred-up fire is brought in immediate contact behind the bridge, with the flame and incandescence of the other fire, and thereby consumed, passing up the chimney in the form of invisible vapour, without any complex admission of air except through the fire bars. We have not yet been able to inspect the plan, but it is certainly exceedingly simple, and is stated to be effectual.

Glossary of English Mining Terms.

In compliance with the request of several correspondents, we lately commenced the publication of a complete series of technicalities used in English and Foreign Mining—in fulfilment of our promise, those of Cornwall and Derbyshire are now completed; and in our next, we shall commence the terms used in Spanish Mining.

DERBYSHIRE.

Horn—A line running horn is at an angle of 45 deg. with the face of the coal.
Jackhead pit—A well sunk inside the mine for various purposes.
Jackhead pump—The house water pump of an engine is sometimes so called.
Jig pin—A pin used to stop the machine in drawing when necessary.
Judge—A staff to measure underground work with—viz. the holeing in coal work.
Jumper—A large borer, an iron instrument worked by hand, and steeled at each end like chisel bits.
Kevil—A sparry substance found in the vein composed of calcareous spar, fluor, and barytes.
Kibble—A bucket used for drawing up lead ore out of the mine.
Kit—A wood vessel of any size.
Knits—Small particles of lead ore.
Knockings—Lead ore with spar as cut from the vein.
Knockstone—A stone used to break the lead ore on, but sometimes it is a piece of cast-iron.
Leap—The vein is said to leap when a substance intersects it, and it is found again a few feet from the perpendicular.
Leadings—Small sparry veins in the rock.
Level—An adit, gallery, or sough; generally, the main water-course in a mine.
Lid—See Cap.
Limp—An iron plate used to strike the refuse from the sieve in washing lead ore.
Loading pick—A pick made purposely to cleave or rive up coals and prepare them for laying on the corves.
Loch—A cavity in a vein.
Lot—A certain proportion taken as dues for the lord of the manor, or owner of the mine.
Maul—A large hammer.
Maundrill—A pick for various purposes, but generally used to undermine.
Mear—Thirty-two yards of ground on the vein.
Needle, or pricker—A thin rod of iron put in shot holes, while they are rammed up, and which being then drawn out leave a hole into which the match is introduced for setting fire to the charge.
Noger—A jumper or borer; a drill.
Nogs—Square pieces of wood which are piled on each other to support the roof of a coal mine.
Noper—See Loading pick.
Old man—Places worked centuries ago, or in former ages.
O'erlayer—A piece of wood on which the sieve is placed after washing the ore in a vat.
Opens—Large caverns.
Open cast—When a vein is worked open from the *day* or surface.
Ore—The mineral as produced in a mine.
Pack—A quantity of materials, either wood or coals, &c., piled up to support the roof, or for other purposes.
Pee—A piece of lead ore.
Pillar—A support for the roof, of timber, stone, or other material.
Pipe—A vein running unlike a rake, having a rock roof and sole.
Plumb—A line and lead to measure with.
Poling—A plank or piece of wood to prevent earth or stone from falling.
Possession—When stowces or wooden frames are placed on a vein it is said to be in possession.
Post—A pillar of coal or other strata left.
Pricker—A thin piece of iron used to make a hole for the fuzze or match to fire a blast.
Pringap—A variable distance between two possessions.
Punch—A piece of timber used as a support for the roof.
Rake—An oblique vein.
Ratchell—Loose stones.
Rib—A pillar of coal left as a support for the roof.
Richet—See Fang.
Rider—A rocky substance which divides the vein.
Ringer—A crow bar.
Rising—A man working above his head in the roof is said to be rising.
Roof—The part above the miner's head; that part of the strata lying immediately upon the coal.
Rubble—See Ratchell.
Run—When the earth falls and fills up the shafts or works it is said to run.
Safety fuse—An excellent invention, by Messrs. Bickford, Smith, and Davey, of Camborne, for the safe and certain blasting of rocks in mines and quarries.
Scaffold—In a mine a platform made, where some miners work above the heads of others.
Scouring bit—A bit attached to the end of boring rods for the purpose of extracting the rubbish.
Scraper—An instrument to extract the pulverised rock, &c., from shotholes when boring.
Scrin—A small vein.
Seat or sole—The floor or bottom of the mine.
Shaft—A pit, the perpendicular entrance to the mine.
Shakes—Fissures in the earth.
Shift—The time a miner works for one day.
Shot—Blasting.
Sinking—Working deeper or downwards.
Skep or Skip—A square box (usually wrought iron) in which the coals are sent up to the pit's mouth.
Sled—A sledge to draw ore without wheels.
Slipes—Flat pieces of iron for the corves to slide on.
Slit—A communication between two adits.
Smelting—Reducing the ore to metal.
Smitham—Small lead ore dust.
Smut—Decomposed dark earthy substance, or coal decomposed by the air at the surface of the earth.
Sole—The seat or bottom of the mine, applied to horizontal veins or beds.
Sole tree—A piece of wood belonging to stowces to draw ore up from the mine.
Sough—An adit or level for carrying off the water.
Spanner—An instrument to turn screws with.
Spindle—A part of the drawing stowces.
Stays—Pieces of wood to secure the pumps in the engine-shaft.
Stemmer—A piece of iron with which clay is rammed into the shot holes to make them water tight.
Stemples—Wood placed to go up and down the mine instead of steps.
Stickings—Narrow veins of ore.
Stope—A piece of mineral ground to be worked.
Stoping—Cutting mineral ground with a pick; working downwards.
Stopping—A dam of bricks or clay to turn the course of the air.
Stowce—Drawing stowce; a small windlass.
Stowces—Pieces of wood of particular forms and constructions placed together, by which the possession of mines is marked; a pair of stowces possess a mear of ground.
Strings—Small veins of ore.
Sump—A shaft underground, a well or lodge for water.
Swallows—Caverns or openings where the water loses itself.
Tacklers—Small chains to put round the loaded corves.
Thurl—A long adit in a coal pit.
Thurst—The ruin of the incumbent strata after the pillows and stalls are wrought out.
Trogues—Wooden drains like troughs.
Troubles—Faults or interruptions in the stratum.
Trunks—Wooden spouts to convey wind or water; small boxes in which rubbish or dirt is sent up out of the mine.
Tub—A cast iron cylinder put in the shaft instead of bricking, for the purpose of beating out the water and making it rise to a level.
Tugs—Hoops of iron fastened on the corves to which the tacklers are affixed.
Turntree—A part of the drawing stowces or windlass.
Underlay—When a vein hides or inclines from a perpendicular line it is said to underlay.
Vein—Any substance different from the rock; a rake vein is oblique; a pipe vein nearly horizontal.
Vat—A wooden tub used to wash ore and mineral substances in.
Wash hole—Where the refuse is thrown.
Walling—When the roads in the mine are made with stone it is called walling. The side of the mine or gangart is frequently called the wall.
Wastes—Vacant places left in the gobbing, on each side of which the rubbish is packed up for the better support of the roof.
Water holes—Places where the water stands.
Weigh board—Clay intersecting the vein.
Wedge—An iron tool to get ore, split rocks, &c.
Whim—An engine or machine to draw ore, &c. worked by horses.
Wind way—A passage left purposely for air.
Wind bore—The bottom pipe in a lift of pumps.
Wind holes—Shafts or sumps sunk to convey wind or air.
Windlass—A machine used to draw up ore, &c. See Stowces, by which name it is commonly called.
Windless—A place in a mine where the air is bad or short, is said to be windless or airless.
Yokings—Pieces of wood ascertaining possession. Stowces.

Mining Correspondence.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

Dec. 23.—Since my last report, we have set Hitchins's engine-shaft to sink below the 110 fathom level. In the 120 fathom level cross-cut the ground continues favourable, and we think we have got under the hard floor. In the 110 fathom level, west of Hitchins's shaft, the lode is ten inches wide, and poor; in the stopes in the back of this level, west of Hitchins's winze, the lode is fifteen inches wide, and worth 30*l.* per fathom; east of ditto the lode is ten inches wide, and worth 12*l.* per fathom; in the stopes west of the sump winze the lode is eighteen inches wide, and worth 30*l.* per fathom; in the stopes east of Doedge's winze the lode is ten inches wide, and worth 12*l.* per fathom. We have resumed driving the 100 fathom level, west of Hitchins's shaft; the lode is eighteen inches wide, and worth 11*l.* per fathom; in the south end the lead lode is three feet wide, producing stones of lead in places; in the rise above the 100 fathom level, on the lead lode, no lode taken down for the past week; in the stopes in the back of the 100 fathom level the lode is fourteen inches wide, and worth 20*l.* per fathom. In the ninety fathom level, driving north, the lead lode is two feet wide, at present worthless. In the sixty-two fathom level west we have just got through the cross-course. In the rise in the back of the 80 fm. level, against Bray's shaft, the lode is small and poor.—W. Lean.

CALLINGTON MINING COMPANY.

Dec. 22.—In the 100 fathom level, driving north of Johnson's engine-shaft, the lode is much disordered, and split in branches, producing silver-lead ores; in the south end, the lode has not been taken down. In the ninety fathom level north the lode continues of a most promising character; the ground is hard for driving, so that our progress is slow; every time the lode is taken down, we are looking forward to an improvement, but so far our expectations have not been realised; the present back will set at 8*s.* in the 1*l.* In the eighty fathom levels no lode taken down. At the north mine, in the ninety fathom level, both north and south, we are opening ground that will set at one-third tribute. In the eighty fathom level the lode is one foot big, composed chiefly of carbonate of iron, intermixed with silver-lead ores. In the seventy fathom level the lode is heaved by an east and west branch, from which we have broken good stones of copper ore. We intend sampling on the 24th inst., and expect to have about 90 tons. J. T. Phillips.

WHEAL MARY SILVER AND COPPER MINE, CALSTOCK.

Latchley, Dec. 13.—Having inspected Wheal Mary Mine, I find you have a most promising speculation, with two great champion lodes. The south lode is cut twenty fathoms from surface, being about twelve feet wide, composed of mundic, spar, iron, a small portion of antimony, and coated throughout with strong yellow ore. At the next lift, I expect to see a great change for the better on this lode. In sinking fifteen fathoms deeper, we shall cut the south lode in the engine-shaft, should it continue its present underlay, which is from two and a half to three feet. A cross-cut is continuing north, when we hope, should the ground not alter for the worse, to cut the north lode two months hence. This is also a strong lode; beautiful copper is seen on this lode, close under the surface. John Tabb.

[A special meeting of shareholders in the above mine took place at the office of the secretary (James Crofts, Esq., King-street, Cheapside), on Thursday, the 18th instant, when it was resolved to extend the number of shares from 256 to 1024, and to make a call of 1*l.* per share on 1024 shares. A finance committee was appointed for the future management in London of the business of the mine.]

ROSCARROCK SILVER-LEAD MINING COMPANY.

Dec. 19.—This mining sett is situate on the north part of the barton of Roscarrock, in the parish of Endellion, Cornwall, and extends from east to west upwards of two miles, and an average width from north to south of more than 400 fathoms, with the promise of an additional grant to the south, if it should be required. The locality embraces advantages rarely to be met with; it extends along the cliffs, wherein adits may be driven, and the lodes proved to the depth of forty fathoms or upwards, without the aid of machinery. There are metalliferous veins to be seen in the cliffs, and on the beach along the whole range of the sett, and the accompanying strata is such as may be considered purely congenial to mineral. At Fox Hole, in a part of the sett about 400 fathoms from the western extremity, there is a very large gossan lode to be seen at the surface, on which we have opened a level a little above high water mark, and extended it about nine fathoms; it was about north-east and south-west, with a very regular underlay, and is now from three to four feet wide in the end, accompanied by a pretty flookan on the footwall, and is spotted with lead and mundic. At Crowser, there is a lode that may with propriety be called a silver-lead lode, as there is stuff to be seen at the surface worth about 60 per cent. for lead, and from twelve to twenty ounces of silver per ton. This place, especially the Rillows, will be thought highly of by any practical miner. A fine stream of water is available for all the purposes of crushing and dressing the ores, and, according to present appearances, those dressing floors may be made within 300 fathoms of Pyne Haven, where the ores may be shipped in small vessels. These advantages will be the means of great saving in labour, in carriage, and in carrying on the workings generally. O. O. Trewren.

[At a special meeting of the shareholders, held on the 3d instant, at the Corn Exchange Hotel, Mark-lane, it was unanimously agreed to take a set of lands adjoining Roscarrock, for the benefit of the company—several valuable lodes having been discovered therein. This mine is managed by a finance committee in London, and all particulars may be known on application to the secretary, James Crofts, Esq., King-street, Cheapside.]

CARADON WHEAL HOOPER MINING COMPANY.

Our engine-shaft is now sixteen fathoms below the surface, and, according to present appearances, we anticipate to sink from two to three fathoms per month. The sawpit lode is now in the shaft, dipping south about two feet in a fathom; it is three feet wide, composed principally of quartz and peach, with some gossan, a considerable quantity of mundic, and some fine spots of copper pyrites. Davies's lode, which is situated south of the shaft, is expected to come into it about thirty fathoms below the surface, but previously it will fall in with the sawpit lode, which I consider a flattering indication, and should they unite and form one, there is every reason to think it may prove productive. Still further south, at a little distance, are Dingle's and two other lodes, which we can very conveniently intersect at our anticipated thirty fathom level. The engine-shaft is now in killas, but there are symptoms of granite coming in from the north, and I have no doubt, from its proximity to Caradon Hill, that we shall shortly get into granite altogether, which will give a favourable change to the nature of the lodes. The levels in South Caradon coming towards us are looking well, which, in my opinion, very much enhances the value of this mine. John Seymour.

HAWKMOOR MINING COMPANY.

Dec. 23.—The lode in the western engine-shaft is twelve inches wide, and unproductive. In the south engine-shaft no lode has been taken down in the past week. The lode in the fifteen fathom level, east of Hitchins's engine-shaft, is twelve inches wide, composed of spar and capel; and in this level west the lode is 15 inches wide, producing good stones of ore.—P. Richards.

TINCROFT MINING COMPANY.

Dec. 22.—Our sumpmen have completed the pitwork to the ninety fathom level, and the water is drained to that level; very little has been done in the bottom levels since my last, consequently no alteration. The lode in the eighty east continues large, producing some ore and very promising; the lode in the eighty west is two and a half feet wide, producing some good quality yellow ore, similar to that we have in a winze sinking below the seventy a few fathoms behind this end; the back of this level is now being worked at 8*s.* 6*d.* in the 1*l.*, and from an improvement the men will do well; the lode in the seventy east is two feet wide, producing good quality ore, with some tin; the winze sinking in the bottom of this level, about twenty fathoms behind the end, has very much improved since my last; it is now worth about 16*l.* per fathom. The pitch working at 1*s.* 6*d.* tribute, to the east of Willoughby's shaft, is still looking well, and men making fair wages at that tribute; the lode in the seventy end west is two feet wide, worth 16*l.* per fathom; the winze referred to before in the bottom of this level, is worth 15*l.* per fathom. The sixty and fifty ends east are producing fair quality tinstuff; the rise in the back of the sixty is this day communicated to the fifty—this rise has laid open a good piece of tin ground, which will now let at a moderate tribute; the sixty and fifty west are at present unproductive. The forty west is worth about 6*l.* per fathom. At Palmer's, in the seventy fathom level, the water has been in during the past week. The sixty west, on East Pool lode, is producing but a small quantity of ore at present, the lode being split by a horse of killas; the pitches in the back and bottom of this level continue to yield good quality ore. The south mine continues to look well for tin, but no alteration since my last. William Paul.

STRAY PARK AND CAMBORNE VEAN MINES.

Dec. 16.—The lode in the seventy end west is eighteen inches wide, worth 18*l.* per fathom. In the eighty end west the lode is six feet wide, worth 70*l.* per fathom without seeing north wall; the lode going back east is stripped down about three fathoms, worth 70*l.* per fathom. In the ninety end west the lode is two feet wide, worth 12*l.* per fathom; in the winze sinking below the ninety fathom level the lode is two feet wide, worth 40*l.* per fathom. In the 100 end west the lode is one foot and a half wide, worth 6*l.* per fathom. In the 110 end, driving west, the lode is one foot wide, with good stones of ore in it. In the 120 end west the lode is two feet wide, worth 20*l.* per fathom; in the winze sinking below the 120 the lode is eighteen inches wide, worth 18*l.* per fathom. In the 140 end east the lode is one foot wide, with stones of grey ore in it; it is not yet communicated with Stray Park. The levels below the 140 have been suspended since last report, and will not be resumed before the water is let down from Stray Park, fearing to endanger the new lodes. Not less than 500 tons will be sampled next time, which will leave a larger profit to the adventurers than the last sale.

SILVER VALLEY MINING COMPANY.

Dec. 22.—I beg to say, that the water is in fork to the thirty fathom level; the shaft is full of stuff to this place, and the shaftmen are busily engaged dividing and casing the shaft, in order for clearing the stuff to the bottom; the level is driven east nine fathoms, and west eighteen fathoms, on the course of the lode, which is from nine inches to two feet wide, composed of capel, spar, and peach, with some good spots of tin; the bottom of the eastern level is stoped in places, and the backs will work on tribute. We have just commenced to drive the twenty fathom level west; the lode is four feet wide, composed of capel, spar, and peach, producing some good tin work. S. Richards.

HANSON MINING COMPANY.

Dec. 22.—By way of report this week, I beg to say, in Stainsby's engine-shaft the lode is two feet wide, a kindly lode, with some ore. In the twelve fathom level, east of Stainsby's engine-shaft, the lode is twelve inches wide, with some ore; in the same level, west of sump whim shaft, on Stainsby's lode, the lode is 2 ft. 6 in. wide, with some ore. At Hanson, our sumpmen are sinking Hanson engine-shaft under the fifty-four fathom level in favourable ground. In the fifty-four fathom level, west of Hanson engine-shaft, on Ribb lode, the lode is two feet wide, with some good stones of ore, a very kindly lode. In the forty-four fathom level, east of Garden shaft, on Ribb lode, the lode is small and unproductive. Z. Williams.

CONSOLIDATED TRETOIL MINING COMPANY.

Dec. 22.—The lode in the seventy fathom level, east of Henwood's shaft, is twenty inches wide, producing good ore, and opening ground for tribute; the lode in the seventy fathom level west is six inches wide, producing a small quantity of ore; the lode in the rise, in the back of the seventy fathom level east, is one foot wide, good saving work. By means of the late floods, which has greatly increased the water, and some breakages in our East Tretoil engine rod, we have not been to work at this level since Tuesday last, and it is not likely that we shall do much more at this level until the new engine is set to work. The founder has promised to get all his work ready in a fortnight; we are keeping up our work close, to be ready as soon as possible after we have our materials; the engine is nearly complete. The lode in the rise against Williams's shaft is one foot wide, saving work. In Williams's shaft the lode is much as last reported. H. Williams.

GUNNIS LAKE MINING COMPANY.

Dec. 23.—At Chilsworthy, we purpose setting the engine to-work to-morrow, and, after the Christmas holidays, we shall resume sinking Bailey's engine-shaft. The lode in the adit level east is two and a half feet wide, composed of gossan and spar, very kindly. W. Richards.

EAST TAMAR CONSOLIDATED MINES.

Dec. 23.—At Whitson, the ground in Hitchins's shaft is very heavy, and the old timber is very much decayed, so that the shaftmen have been busily engaged in taking out the old timber, and putting in new, which work is done, and our lift dropped six fathoms, which will fork the water below the thirty fathom level, which will be done this week. In the south shaft we have cleared the twenty fathom level sixty fathoms towards Furzehill. Furzehill is just the same in appearance as last week. Charlotte is just the same.—B. Robins.

WEST WHEAL JEWEL MINING ASSOCIATION.

Dec. 22.—The ground in the 115 cross-cut is a little more favourable for driving. The 100 fathom level west, on Wheal Jewel lode, is small and unproductive; in the 100 fathom fathom level east, on ditto, the lode is worth 10*l.* per fathom. In the eighty-five fathom level west, on ditto, the lode is worth 5*l.* per fathom. In the winze, sinking below the seventy west, on ditto, we have been obliged to suspend operations here, in consequence of water, and must wait till the intersection of the cross-course in the level below, which, no doubt, will drain the water to that depth, and enable us to sink the winze referred to dry, which was commenced in the cross-course, in order to expedite sinking. The eighty-five fathom level west, on Buckingham's lode, is six inches wide, composed of prian and spar; in the eighty-five west, on the south branch, the lode is a little more promising in its appearance, and the ground more favourable; the ground in the eighty-five cross-cut south is much the same as when last reported. The thirty east, on Morcom's lode, is two feet wide, composed of spar and mundic. The twelve fathom level west, on Tolcarne lode, is worth 10*l.* per fathom for tin; in the twelve fathom level east, on ditto, the lode is containing good stones of tin. In Wilkinson's engine-shaft, sinking below the thirty fathom level, the lode is three feet wide, composed of spar, mundic, and spots of ore. S. Lean. R. Johns.

GREAT WHEAL MARTHA CONSOLIDATED MINES.

Dec. 20.—We have done but little in developing the north part of the lode at the ninety fathom level since our last report, in consequence of such large quantities of water issuing from every part of it, that it has been impossible for the men to work here one-third of their time; we trust, however, that the lode will become drained in the course of a few days, when they will resume their work with fresh vigour. We feel particularly anxious to carry on operations in this part, both on account of the high temperature of the water being a favourable symptom, and the north part of the lode being fast approaching that of the south, they will evidently be found to have formed a junction not many fathoms east of our present workings. Although the men of whom we have just spoken have been prevented working in the bottom of the mine, they have, nevertheless, been kept at work in sinking the winze in the sixty fathom level west, the lode in which is very much improved. We have intersected another cross-course in the forty fathom level west; it is underlaying east, and consists of friable quartz, containing small veins and spots of pure copper pyrites; this is not the lead lode to which we have formerly called your attention. The lode, west of the cross-course, is about three feet wide, composed of capel, carrying a little copper ore. At the new mine, the lode in the twenty fathom level east is about five feet wide, with much the same appearances as last reported. In the twenty fathom level west the lode continues very large, and promising, the whole of it being composed of mundic and copper ore, with the same kind of softish blue killas we have in the ten fathom level west, the lode in which is split into two parts by a cross-course; we have just intersected the north part, which consists mostly of quartz, accompanied by stones of rich copper ore; the south part is not without copper, but mundic is the predominating mineral here. The lode in the adit, driving west, is four feet wide, containing stones of ore. J. Prince. T. Penaluna.

TAMAR SILVER-LEAD MINING COMPANY.

Dec. 22.—In the 145 fathom level there has been no lode taken down since last report. In the 135 fathom level the lode is two and a half feet wide, one foot of which is rich work. In the 125 fathom level the lode is three feet wide, composed of can and ore. In the 115 fathom level the lode is nine inches wide, producing work of a good quality. In the 105 fathom level the lode is six inches wide, composed of capel and ore. In the winze, rising in the back of the ninety-five fathom level, the lode is nine inches wide, producing some ore, but not rich. In the eighty-five fathom level the lode is small and poor. The fifty-five end is in slidy ground, and unproductive. The incline plane shaft is sunk nine fathoms below the 105 fathom level, and the ground still favourable for sinking. At North Tamar, in the sixty fathom level, north of the shaft, the lode is two feet wide, composed of mundic and capel. In the fifty fathom level the lode is eighteen inches wide, producing some good work. The forty fathom level is suspended for the present, in order to rise a winze for ventilation. At Wheal Hancock, we are still driving north in a disordered piece of ground, but cannot say yet of tracing any regular lode.—J. Sprague.

TRELEIGH CONSOLS MINING COMPANY.

December 20.—The ninety, east of Christoe's, was holed on Wednesday last; in the ninety, west of ditto, we have not yet seen the lode in this end. Garden's shaft is four and a half fathoms below the eighty; the ground much as usual. In Good Fortune shaft, below the seventy, the lode is very large, but not much mineral. In the seventy, west of ditto, the lode is three feet wide, producing stones of ore; in the rise, above the sixty west, we have holed to Symons's shaft below the fifty; in Symons's shaft, below the fifty, the men will cut down the rise, and timber the shaft, &c.; in the fifty cross-cut, north of ditto, no alteration in the ground, now extended about thirty fathoms—six or eight fathoms more to the lode; in the fifty, west of Symons's, the lode is about two feet wide, worth about 4*l.* per fathom. In the thirty-four, west of ditto, nothing done, the men employed elsewhere. In the twenty, west of ditto, the lode is two and a half feet wide, unproductive; in the adit, west of ditto, but little done since last report for want of air. I beg to inform you that Christoe shaftmen will commence cutting a plat, and prepare to sink below the ninety fathom level; in the ninety end, the men who were driving west from the sump winze, will drive the ninety fathom level, east of sump winze; the west level, when holed, is three feet below the one from the sump winze, which is in our favour, as the water will now all come to Christoe shaft, and shall also have the advantage of this three feet stope to put over a bottom of twenty or more fathoms in length, through a good course of ore. Ores sampled on 10th Dec.:—79 tons, produce, 5½; 51 do., 10¼. From the uncertainty of the standard lately, we cannot easily calculate the value of it, but would say, about 680*l.* William Symons.

BARRISTOWN LEAD MINE.

[illegible], Dec. 18.—The flat-rod shaft in sinking is gone through the lode, and we have commenced driving east on the lode at this level; the ends will produce from two and a half to three tons, and worth over 40*l.* per fathom. In the twelve fathom end, driving east of engine-shaft, the lode has taken a great underlay; we have not been able to follow it exactly in its course, the men have been employed in driving south to get it higher in the end; the stopes behind this end in the bottoms, produce less ore than last reported, at present half a ton per fathom; the stopes in the back look much the same, producing one ton per fathom. The end driving east, on the middle lode, looks better, two and a half to three feet wide, producing over one ton per fathom; the stopes behind this end are now dry, from the rise being holed, and working by a party of tributers at 5*l.* per ton; the men are obliged to abandon the stopes west behind the western end (twelve fathom level), on account of bad ground, it being so near the sea; the lode discovered up the hill has not been sunk on this week; the tributers have been employed in stoping the ground they sunk through; the stopes look full as well as the shaft, producing over two tons per fathom; the men in the other surface shaft east, have the lode very large, but without much ore—they have just cut it; the reason we have not been sinking is, the increased feeder of water—we are preparing a lift for it.

BEDFORD UNITED MINING COMPANY.

Dec. 23.—At Wheal Marquis, the new engine-shaft is down to the eighty fathom level, and we have commenced driving south to cut the lode. The lode in the seventy fathom level east is two feet wide, and worth 10*l.* per fathom; and in this level west the lode is eighteen inches wide, composed of spar and mundic. In the fifty-eight fathom level east the lode is two and a half feet wide, and worth 10*l.* per fathom; in the rise in this level no lode has been taken down. In the forty-seven fathom level west, on the south lode, the lode is eighteen inches wide, and worth 8*l.* per fathom. At Ding-Dong, there has been no lode taken down in the twenty-four fathom level east or west. At Wheal Tavistock, the lode in the thirty-five fathom level east is two feet wide, composed of spar, mundic, and good stones of copper ore; in this level west the lode is two feet wide, producing some saving work. No lode has been taken down in the twenty-five fathom level west. J. PHILLIPS.

FOREIGN MINES.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gold Report.

	From the Stamps.	Total raised.
1845—Sept. 23 to 30	lb 6 7 11 0	lb 6 10 16 0
Total from 1st July to 2d Oct.		lb 72 9 12 0

[No letters received.]

ALTEN MINING ASSOCIATION.

Estimate of Ore produced October, 1845—(Five weeks.)

Mines.	No. of men.	Tons ore.	Per cent.	Tons copper
Raipas	26	98	5¾	5·63
United Mines	8	28	5	1·40
Ryper's	10	12	7¼	0·90
Mancur's	12	10	5	0·50
Old Mine	—	6	4	0·24
Michell's	—	2	7	0·14
New lodes	—	2	7	0·14
Total	56	158		8·95

Mining Report, from 25th October to 10th November, 1845.

Notwithstanding the many disadvantages we had to contend with at the commencement of last month, and which were alluded to in my last report, the improvement which has taken place in some of the lodes, has enabled us to increase our produce for the month by nearly two and a half tons of copper; this increased produce may be attributed principally to.

Raipas, where the lode in the shallow adit has become more impregnated with prills and best dredge; the smalls and second dredge, must, consequently, experience a corresponding improvement, and we hope that the returns to the smelting-house, for October and November, will be found to exceed the estimated per centage; if the weather permit, we hope to return 200 tons of ore by the end of this month.

United Mines.—The reserve ground in one of the stopes is now exhausted, and as much of the lode has been excavated as could be done consistently with the safety of the mine, and the lives of the workmen; the stope above the forty has again improved, as the above estimate will testify, and which has subsequently been verified by the actual delivery to the smelting-house, consisting of twenty-five tons of dredge, and twelve tons smalls, of which the assays have not yet been made, but the former may safely be taken at 6 per cent., and the latter from 2¾ to 3 per cent. These parcels are independent of the smalls, picking, stuff, and halvans, all of which are prepared for the ore dressing operations in the summer; two additional stopes, with two men in each of them, have also been set in this part of the mine, one appears in the list of settings for November, the other has been set subsequent to the survey day; at Woodfall's we have set a stope on the back of the lode, where some few tons of good ore have been produced. All the workings on Ward's old lode may be considered in virgin ground, and, without any untoward change, we may reasonably expect a further increase in the present month's produce, without any considerable augmentation in the expenditure.

Mancur's.—The lode has undergone no change since my last report, but we hope to increase the returns of ore by the additional stopes specified in the list of settings.

Ryper's continues good, and we do not apprehend any deterioration in the produce.

Old Mine.—The old stulls are now nearly exhausted, the produce consists principally of smalls, and stamp's stuff, which cannot be returned before the summer; the dredge only amounts to about two tons monthly, but in a short time we may probably set a stope in a piece of ground that has lately been opened above the adit level, in the western part of the mine. The returns to the smelting-house for October, only amount to about four tons of copper, but as soon as the driving recommences at Raipas and Ryper's, or against the early part of December, we hope to deliver a sufficient quantity of ore, to make fourteen tons of copper more. S. H. THOMAS.

[FROM CORRESPONDENTS.]

ST. AUSTELL CONSOLS.—The lode intersected in the adit level continues productive, returning from twenty-five to thirty tons per month, and worth, on an average, about 6*l.* per ton, each fathom of ground producing a ton of ore. This discovery is considered by all agents who have inspected it likely to be lasting, and that sufficient ore will be found to enable the company to erect a powerful engine without a further call. Too much cannot be said of the excellent management and economy which has been pursued in bringing this sett into its present state.

FOWEY CONSOLS.—J. T. Treffry, Esq., has effected an arrangement for a valuable piece of ground situate between, and adjoining, North Fowey Consols, and annexed it to Fowey Consols; an excellent copper lode, four feet wide, is known to run through this sett, which it is hoped will be found productive on being further explored.

WHEAL CONCORD.—In consequence of the inefficiency of the water-wheel lately erected, preparations are now actively making for the erection of a powerful steam-engine, and resuming the workings with greater spirit. The discoveries in Wheal Grace, within a few fathoms of the present engine-shaft, are quite sufficient to stimulate the company to more active measures—upwards of 3000 tons of lead ore were returned during the former workings, about six years since. A special general meeting of the shareholders in this mine will be held, at the account-house, on Thursday, the 8th of January next ensuing, for general purposes, and appointing a finance committee in London.

WHEAL GRACE, immediately adjoining Wheal Concord on the west, and containing the same lode, has a shaft sunk fifteen fathoms from the surface, and cut the lode three fathoms wide, producing lead ore, more or less, throughout; from fifteen to twenty tons are on the surface, nearly ready for the market—within the last three days an improvement has taken place, and a new lode has been discovered, but of which little can be said until further developed.

WHEAL CARPENTER, contiguous to the above, has been taken up, and shoding for the lode commenced, which has already been seen in several places for a great length, and present similar appearance as seen in Concord and Grace, which on pursuing in depth, no doubt, will be found equally productive.

DEVON AND COURTNEY CONSOLS.—The great gossan lode is now cut in a pit fifty fathoms further west than previously sunk, composed of a beautiful gossan and a most congenial killas.

WHEAL FORTESCUE.—Within the last few days an improvement has been made by the discovery of a very promising branch of ore.

WHEAL ELIZABETH, near Callington.—They are driving south from the engine-shaft to intersect the lode at the ten fathom level, which, it is expected, will be accomplished by the end of the present month; there being about nine feet more to drive, but the end is very wet, and troublesome for driving. The ground is clay slate of a most congenial character for lead ore.

SOUTH CALLINGTON.—The adit level is in course of being driven north on the lode; the ground continues of a most encouraging description, especially the last five fathoms, whilst the end gives some excellent stones of lead; the lode being about two feet wide.

WHEAL NOTTER.—The lode is large, and continues to improve, containing stones of copper ore of an excellent quality.

SOUTH TRELAWNEY.—A new lode has been discovered in this mine, eight to nine feet big, near the surface. The adit level now in course of driving will intersect the lode eight to ten fathoms from present end, which will afford proof as to its holding down. Spots of lead are disseminated through the lode.

The tin mines near Ashburton are about to be worked by a London company.

WHEAL SALUSBURY MINING COMPANY.

A general meeting of the shareholders was held at the London Inn, Liskeard, on the 11th instant.—JAMES WOLFERSTAN, Esq., in the chair.—Mr. Robert Taylor (the purser) presented his accounts, which were audited and passed unanimously; from which it appears that the cost for September was 59*l.* 15*s.*; October, 52*l.* 19*s.* 7*d.*—total, 112*l.* 14*s.* 7*d.* By balance of account 25th September last, 91*l.* 5*s.* 9*d.*; leaves due to purser, 21*l.* 8*s.* 10*d.*—to defray which, and further workings, a call of 1*l.* per share was made.

From the agent's report, it appears, the lode on which they have been lately sinking a shaft is nearly on the south boundary of the sett, on which they have sunk about sixteen fathoms below the adit level, drawing the water up in barrels; for several fathoms the water was but little, so that they proceeded without much difficulty. At nine fathoms below the adit they drove a short distance on the lode, and found it to contain some very good ore, and then commenced sinking seven fathoms deeper, in the course of which the water has so increased, as to render it both difficult and expensive to keep; and as the lode recently cut in Caradon Vale continues through this sett, and considered very promising, it was suggested that it might in all probability be wrought on simultaneously with benefit to both parties. It was resolved, "that the working on the south lode be at present suspended, and that the lode lately opened on Atwood Down (that is the Caradon Vale lode), be driven on with all proper expedition." This lode was opened on before the meeting, and is in appearance in every respect equal to what it assumes in Caradon Vale—there are several lodes between these two setts (five of which are known). The lode opened on Attwood Down is about half a mile north of that on which they have been sinking. Before the erection of any expensive machinery it has been deemed necessary to explore the lodes, to ascertain if their appearance will fully warrant the same.

BARRISTOWN MINING COMPANY.

A meeting of adventurers was held at the offices of the company, on Monday last, the 22d instant.—CHARLES CHIPPENDALE, Esq., in the chair.—The monthly cost-sheets and captains' report (which we give in another column) were presented, and considered highly satisfactory. In consequence of the purchase of a very superior crushing machine for cash, it was deemed necessary to make a call of 5*l.* per share; and from the present appearances of the mine, it is thought no further call will be required. The returns are about twenty tons per month, and from the want of the crusher there is now nearly 100 tons of silver-lead ore accumulated. From the peculiar quality of the ore, it cannot be rendered marketable, without the aid of the crusher, and which, from its particular construction, is thought admirably adapted for the purpose. The last parcel of ore sold realised 18*l.* per ton.

NORTH FOWEY CONSOLS.—A meeting of adventurers is convened for the 7th January, 1846, when every arrangement for effectually working this promising sett will be made, and, from the character of the lodes already discovered, there remains but little doubt of this becoming a standard mine amongst her celebrated neighbours.

THE CARADON MINE.—A meeting of adventurers was held at Liskeard, on Thursday, the 18th inst., when a further call of 2*l.* per 256th share was deemed necessary for the further prosecution of the mine.

KIRCUDBRIGHT MINING COMPANY.—A report of the late meeting of adventurers, held at Liskeard, with that of the financial committee, has come to hand. The length, however, to which they are carried, precludes us from giving them insertion: we will endeavour, however, to give an abstract next week.

WHEAL ROSE CONSOLS.—A meeting of the adventurers in this undertaking is to be held on Tuesday next, for the purpose of transacting the general business of the mine.

TREWAVAS MINE.—The two monthly meeting for Sept. and Oct., which was appointed to be held on the 5th day of January next, is postponed until Monday, March 2d. The new work agreed on at the last meeting is not yet perfected, and at present there is but little alteration in the mine.

WHITE DAMP—DR. MURRAY—MR. RYAN.

SIR,—The Staffordshire colliers appear to have puzzled your correspondent Dr. Murray, when they informed him of the existence of *white damp*. He seems to discredit it; will he believe me, a very young collier, if I inform him that it is well known among colliers, and is occasioned by unusual heat in the strata, either above or below the mine; I should, with all respect, ask Dr. Murray, if there ever was a coal mine in the world, worked on Ryan's method, as first reported upon by him? If there was, and the effects were successful, let the mine be named for the benefit of others.

Llanfoist, Dec. 22. A YOUNG COLLIER.

WHEAL WILLIAMS, IN THE PARISH OF CALSTOCK.

SIR,—For many months past the mining community has been in a state of excitement, in consequence of the numerous applications for the above sett. About a month since, the Duchy expressed their willingness to grant upon certain conditions, and, accordingly, addressed a letter to a number of the applicants, requesting that a list should be furnished them, containing the names of not less than ten gentlemen, each to be submitted to the council, who would select that list whose respectability would be a guarantee, that the mine would be not only worked in a miner-like manner, but to preclude its being brought into the market for jobbing in shares—at least, so says report. Six of the leading miners, connected with the county, coalesced, so as to secure by that union the certainty of the grant. Imagine, Sir, the surprise of all—excepting the parties concerned—when it was announced that it had been granted to a company, in whose list figures several of the greatest "jobbers" in the county of Cornwall. The Duchy, to secure to themselves a large stake in the speculations, imposed the dues of 1-12th, and a certain annual rental from the profits, to be fixed by the *bidders* themselves. An offer of 33 per cent.—nearly one-third of the profits—obtained the expected prize. I can only account for these absurd and unprecedented terms, from all I can gather from those best acquainted with these matters, by supposing the Duchy officers were bound to accept the highest bidder, and that such an offer was made by the Truro party to *secure* the lease, thinking, from the great number of applicants, that the price of shares would run very high. In this, however, I suspect they will be disappointed; for, no one at all acquainted with mining, can look at the transaction otherwise than with digust, and, having a tendency to injure, if not destroy, the mining interests of the county, of which it is too apparent that the lessees can have no very great regard. The great value set on this property, arises from a *supposed* run of the Maria lode through it; but, in this also (if I am rightly informed), time will convince them to the contrary. The Maria lode west having become divided, the rich part running in a more northerly direction—whilst the poorer one may pass through Wheal Williams—I would add, for those not well versed in mining, that the dues alone are excessive, if not most arbitrary; and that a portion of the profits, in addition, is a severe tax on the enterprising spirit of mining speculators, and a feature quite new. The average rate of dues in Cornwall is probably 1-18th dish.

My object in addressing this communication to you is, to open the eyes of London speculators, as I learn that shares are already offered in our market at a great price, and, if the public be not guarded, the jobbers will walk out at a vast profit, leaving the unwary to work the sett with their capital and credulity. May I request the favour of your views on this new system of innovation; for, to your advocacy, and that of your correspondents, we look for protection.—O. P. Q.: *Regent's-park, Dec. 23.*

THE ALSTON MINING CASE.—The arbitrator in the case, "Hudgillburn *v.* Gallegillwell," has made his award as follows:—1. That the Gallegillwell Company are entitled to the veins D and E, and that the Hudgillburn Company are to pay them 1025*l.* in respect thereof. 2. That the Hudgillburn Company are entitled to the fourth Sun vein, and that the Galligillwell Company are to pay 326*l.* in respect of the ore got therefrom. 3. The Hudgillburn Company are to pay their own costs of the Chancery suit, as well as the costs of the Commissioners of Greenwich Hospital. 4. The Gallegillwell Company to pay their own costs of Chancery suit. 5. Each to pay their own costs of reference. 6. The Hudgillburn Company to pay the Gallegillwell Company the sum of 74*l.* 13*s.*, the value of materials set forth in the schedule annexed to the award.

WHEAL BOSCASTLE MINE.—On Thursday last, the lode was cut at the twenty fathom level, about four feet wide, and presents a very favourable appearance. The lode is composed of beautiful yellow copper, and very strong gossan, with a very fair underlay. Shares are rapidly advancing in price in this locality.—*Cornwall Gazette.*

LLANFIHNACH MINES.—The working of these mines have been brought to a stand still, by the smashing of the large wheel, which happened on Thursday last. None of the workpeople were near, and the captain, being roused out of his sleep by the noise occasioned by large portions of the cast-iron arms of the wheel revolving in the inside, and, in their fall, breaking the cast-iron backing of the buckets, instantly rushed to the check place, turned the water off, and then used the utmost exertion to get the men out of the workings before the water rose so high as to shut them in. In the morning, the wheel was found to be a perfect wreck, it will cost at least 100*l.* in repairs, and be five or six weeks before ready. It is suspected not to have acted altogether accidentally, as twice before the machinery has been purposely damaged, which stopped the works upwards of a week each time. We cannot understand this conduct on the part of any one, for the injury to the miners in being thrown out of work at this season of the year must be severely felt. We are told that they are particularly annoyed at it just now, as they have been working at a cross-cut for many months, and were expected every stem to reach a lode, which has produced several thousand tons of ore in the upper levels.—*Welshman.*

WYLAM'S PATENT FUEL.—Mr. Pesson stated at the Thames Police-court, on Wednesday, that the time of the court with respect to this case would be spared, it being agreed to withdraw the informations against the *Malmesbury*, and to make the issue dependent upon an action to be tried in a superior court.

LUGAR IRON-WORKS—(*From a Correspondent*).—The seam of black-band ironstone at these works, which are now in course of erection near Cumnock, in Ayrshire, is six feet thick, which is very extraordinary—the thickest black-band hitherto found being only thirty inches.

IMPORTANT IMPROVEMENT IN MACHINERY—VICTORIA IRON WORKS.—It having been found requisite to sink a pit which had formerly been employed in working some of the top measures of ironstone to a lower depth, so as to command the bottom mines at the above works, and a spare steam-engine not being disposable for the purpose, the balance machinery by which it had formerly been worked was taken down and removed. A sheave wheel was firmly fixed on top of the framing, over which a rope that commanded the bottom of the pit passed, being attached at the outside, or land end, to a tram filled with iron, &c. This tram ran upon an inclined plane of about 1 in 8 fall, so that when the water or spoil required to be raised from the bottom of the pit a horse was attached to the tram, and with little exertion draws the same down the plane, the pit-bucket ascending. When the same is discharged on the top, the horse returns with the tram up the plane ready to start again. That so simple and effectual an application of power should so long have been overlooked surprises every one who has seen this admirable invention.—*Merthyr Guar.*

ECONOMY OF FUEL.—It is stated in the New York papers, that a great improvement has been made and patented by Messrs. Clute and Seabury, of that city, in the consumption of coal and other fuel in furnaces of engines, either fixed or locomotive, and by which a saving of from one-third to one-half in the expense is effected. The improvemement appears very simple, and is thus described:—"The process by which this is effected, is very simple, and can be effected when works are being put up or remodeled at an expense (other than the patentee's charge) of but few dollars if any thing; to apply it to works already in operation may cost some $25 or $50 for materials and labor. The active agent is a common blower, acting on a coal fire in the common boiler-grate, from which the heat and flame pass over a bar which brings them into close contact with the boiler, which they follow to the farther end. Here, instead of passing up into the flue or chimney, the unconsumed gases are retained in the chamber of combustion by the action of a strong current of atmospheric air admitted into the chimney a few feet above the fire chamber. This air being heavier than the heated gases, bears them down, and in fact all the gases usually escaping from fuel and forming smoke, heated air, &c., are retained in the fire chamber and consumed, except the carbonic acid gas (incombustible,) which alone is forced off, hardly warm, through the chimney by the action of the blower. All beside is retained and consumed in the formation of steam. Any offensive gases which may be generated by the manufacture carried on by the help of the engine to which this apparatus is attached, may be conveyed into the fire chamber, and made not merely harmless but useful." The statements made are supported by certificates from several large houses employing steam power, who state the plan to be highly successful.

AMERICAN RAILROAD IRON.—The Montour Iron Company, says the *Danville Intelligencer*, have supplied the quantity of railroad iron wanted at this time by the Harrisburg and Lancaster Railroad Company, and are now making and forwarding to the city of New York, for the Erie Railroad Company. They also have contracts to supply iron for some short roads in Schuylkill county; also, a contract for a road in one of the Eastern States. For some time past the work of making railroad iron at the works of the Mountour Company, has proceeded, day and night, Sunday excepted, with remarkable steadiness, producing rails that are as perfect as it is possible to make them.

AMERICAN IRON TRADE.—In the spring of the present year there were but two anthracite furnaces in blast between Pottsville and Philadelphia—Dr. Palmer's, the "Pioneer," on the Island, and one at Phœnixville. There are now four in blast, and another will be added to the number in one or two weeks. They are capable of turning out 275 tons of iron per week, or 18,750 tons per annum. In the course of next season, the following furnaces will be in operation in the coal region, and on the canal between this place and Philadelphia—they are all at this time either in blast or in process of erection,—at Spring Mill two; Conshehocken one; Phœnixville three; Birdsborough one; Reading one; in the coal region three. These furnaces, eleven in number, can produce 610 tons per week, or 30,500 tons per year. Heretofore, three tons of coal have been required for the engine and stack, to produce a ton of iron; but since the new method of heating the blast at the tunnel-head has been introduced, the quantity of coal used has been reduced to about two and a half tons to smelt a ton of iron. These furnaces alone will consume seventy-five thousand tons of coal per annum. This quantity is independent of that which will be required by the rolling mills, steam forges, and other iron works, erected and in course of erection, which will require about fifty thousand tons more. In taking the census during the week, of a portion of the borough, it was discovered that no less than twenty-three families occupied a building which was erected in the Orchard for an hotel, numbering upwards of one hundred persons. In Morris's Addition also, one house contains sixteen families, some of which keep boarders—and in another small house there are six families—making forty-five families in three houses, with a population of two hundred and twenty-seven persons. At St. Clair, about four miles from Pottsville, which last year contained between 100 and 200 people, during the present season eighty new buildings have been erected, and next season one firm intend to build 139 miners' houses. It is whispered that an extensive rolling mill will be erected in connexion with the furnace near St. Clair.—*Miner's Journal.*

MINE ACCIDENTS.

Wheal Maria Mine, Tavistock.—A miner, named Butterel, was killed by a fall of earth.

Derby.—Several men were shockingly mutilated by an explosion of fire damp in one of Mr. E. M. Munday's pits, on Saturday last.

Farnworth, near Bolton.—J. Aldred was killed in Mr. Hu ton's colliery.

Wellington Pit, Whitehaven.—As D. Hinde was ascending the shaft, the bucket came in contact with the air conductor, and he was thrown out, and killed.

Littletown Colliery, Gateshead.—T. Maudlin and E. Crosby were crushed by a fall of stone in this colliery.

Cassop Colliery.—J. Bland was crushed to death by the machinery.

Newton Colliery.—J. E. Grey was killed in Capt. Widdrington's pit.

Dudley.—J. Provence (eleven years old) was killed in a pit at Dudley Port.

West Bromwich.—J. Hayes was killed by a fall of coal in Mr. Davis's colliery.

Devon Iron-Works.—A smith, named Bain, fell down a shaft, and was killed.

Newarthill Colliery, Glasgow.—W. Paterson and J. Smart were killed by an explosion at the No. 2 pit, the property of Mr. Watson.

Bradley.—J. Walton was killed in Mr. Wilkinson's colliery.

Brockmoor.—J. Dunn was killed by a fall of coal in Mr. J. W. Johnson's pit.

Kingswinford.—W. Hickman was killed in Mr. James Boydell's pit.

Bilston.—J. Wilkinson was killed at Messrs. Baldwin's blast furnaces.

Burslem.—As J. Sawyer was working in a colliery, at Sneyd Green, his naked candle caused an explosion, by which he was killed, and J. Sergeant was dreadfully burned.

Victoria Colliery, near Nitshill, Glasgow.—An explosion took place in this pit, about six weeks since, which has caused a complete stoppage of the workings.—In consequence of the coal igniting when this explosion occurred, the pit was closed up as nearly as possible air-tight, and allowed to remain so for nearly six weeks, in expectation that by this means the fire would be effectually extinguished. We regret to be informed, however, that in this the proprietors have been disappointed, as, early on Friday morning, after the pit had been again opened up, a second explosion took place, more serious than the first. The fire, it would appear, had not been fully extinguished, for re-admission of the air caused the gas to explode that had necessarily collected in the workings. So tremendous was the force of the explosion, that pieces of waggons and other woodwork were thrown up and scattered some hundred yards round the mouth of the pit, which is 178 fathoms, being the deepest pit in Scotland. An iron water bucket, half a ton weight, was thrown up to the mouth of the pit from a depth of about forty fathoms. We are happy to learn that no person was injured. From correct sources of information, we understand, the stoppage of operations will still be only temporary. Messrs. Coats, of Paisley, the spirited proprietors, have been engaged for a considerable time in sinking a new pit to the rise of the Victoria, that will act as a safe and complete ventilator to the whole workings, which have already been proved to be very extensive and valuable. It is expected that both pits will be again in operation upon safe principles, in the course of a few months. We understand the proprietors have opened another pit, being a different seam of coal, whereby all the miners employed by them will be kept at work.—*Glasgow Saturday Post.*

The late Steam-Boiler Explosion at Willenhall.—On Thursday, an inquest was held before T. M. Phillips, Esq., coroner, at the Saracen's Head, Willenhall, on the body of Edward Wood, engineer, who was killed (as stated in last *Mining Journal*), by the bursting of a steam-boiler, at Messrs. Thorneycroft and Co.'s colliery, Willenhall. J. Wood, brother to the deceased, said he was an engineer, and employed at the works: J. Reece, the engineman, was getting up the steam, and he was at the gears: as soon as the steam was up in both the boilers, the engine began to act, and then they blew the vessels of the engine clear; the injection cock was opened for the engine to take water, and the throttle valve opened. The engine was put in motion, and made half a stroke, and in consequence of its not having made a full stroke, Mr. Thorneycroft directed him to reverse the gears; he did so, and the explosion took place. The deceased, who was standing near, was knocked down by the bricks of the stack falling upon him, dreadfully scalded, and killed upon the spot. In his opinion, the occurrence was attributable to the want of a balance on the counter wheel and a fly wheel—*the omissions were an experiment!* He did not apprehend any accident, or he would have avoided the danger. The engine was a good one; the boiler would bear a pressure of 14 lbs. to the square inch; there were only about 8 lbs. at the time of the explosion. J. Johnson, engineer, said the boiler and engine were of good materials, and in working order. In his opinion, the explosion took place from the want of a balance on the counter beam, and the want of a fly-wheel had no connection with it.—Verdict, "accidental death."—*Wolverhampton Chronicle.*

Original Correspondence.

NEW PROCESS OF SEPARATING SILVER FROM COPPER ORES.

Sir,—Among the various chemical discoveries of the age, one of the most important, both in a scientific and commercial point of view, appears altogether to have escaped public notice. As a subject connected with mining, I beg to bring it under your consideration.

About three years since, a method of separating silver from copper ores by a very simple process was discovered at Haxtadt by Mr. Zervogle. It was subsequently applied to silver ores with a result equally satisfactory. The process has been patented both in this country and in Mexico, and is therefore no longer a secret. It consists in the conversion of the silver, by roasting, into chlorides or sulphates; the first of which are soluble in a saturated solution of salt and water; and the latter by hot water alone, depending upon the nature of the ores to be reduced.

The Mexican patent has been taken out by the Real del Monte and Bolanos Companies jointly: and a gentleman, formerly in their service, and who has acquired in Germany a complete knowledge of the process, went out to Mexico, by the December mail, to carry it into operation in the haciendas of the Real del Monte Company.

It seems somewhat strange that a discovery, which will supersede the old method of reduction by amalgamation, upon which no improvement has been made for upwards of 300 years, and which has been an object of research among many distinguished chemists of the day, should have escaped altogether the attention of the public.

By this method, a class of ores of inferior ley may be reduced; and there are thousands of tons now to be found in Mexico, on surface, and which have been hitherto considered as waste, on account of the expense of reduction; but from which a profit may be now made by this new method.

If, as I believe, no doubt exists of its success, it is not easy to predict the important changes which must take place, from the increase of the mineral wealth of Mexico. There are in that country many hundred mines hitherto not worked, because of the only known means of reducing an inferior class of ores, which is productive of loss—both on account of the cost of quicksilver and the deficiency in the quantity of silver produced.

A short time will now settle the question: and you shall have early information of the result.—Metallicus: *London, Dec.* 24.

APPLICATION OF ELECTRO-MAGNETISM TO RAILWAY PROPULSION.

Sir,—If the following scheme be not new, those who have laid it aside have seen more fatal objections to its practicability than I do. Some time ago experiments were tried, with regard to the application of electro magnetism to propulsion on railways; the result of these were highly satisfactory in establishing the efficiency of the mechanical action of the machines, and the usual railway speed was proved to be maintainable; but the grand objections were the weight of the galvanic batteries requisite for sufficient energy,—their expense, and the fact that this mode of propulsion, as well as the steam locomotive, required the motive power to be carried with the load moved. Now, suppose we have a railway ten miles long, and that at one terminus there is placed an enormous stationary galvanic battery; might we not make the rails themselves the conducting lines of the battery? and the wheels being so arranged, as to break the connexion where required, a rotating magnet might revolve by the electro-magnetism thus communicated. The first question which is immediately suggested is, how much of the galvanic current would escape by the earth, across the rails? Now, surely, if half the trouble that has been expended on the valves of the exhausted tubes of atmospheric railways, were to be employed here, we should soon have some method of cheap insulation invented. Imbedding in wood prevents a great deal of this loss, and this difficulty seems to me the only one. Of course the axles of the wheels of the train must be of some non-conducting substance; they might, like the wheel tyres be of wood. Perhaps some fertile brain may take the hint, and being forth soon the "Electric Railway."

J. M.

Trinity College, Cambridge, Dec. 11.

CRADDOCK'S IMPROVED EXPANSIVE SLIDE VALVE,

Fig. 1.

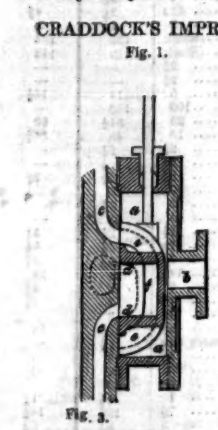


Fig. 2.

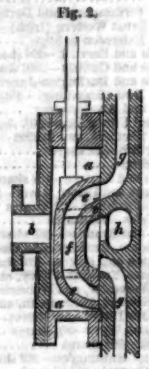


Fig. 3.

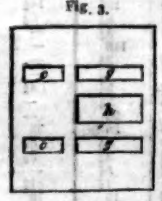


Fig. 4.

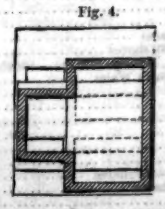
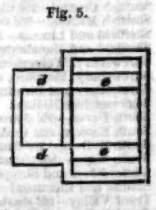


Fig. 5.



Description of the Figures.—Fig. 1 is a vertical section of the slide valve and valve chest through the steam passages of the high pressure cylinder; and fig. 2, a section of the valve through the passage of the expansive cylinder. Fig. 3, a view of the steam and eduction passages in the valve seat. Fig. 4, a vertical section of the valve upon the line *y, h;* and fig. 5 is a view of the face of the valve; *a*, is the valve chest, which is supplied with steam from the boiler by the neck *b*; *c, c*, are the passages by which the steam passes to and from the upper and under slides of the high pressure piston *d*; *e*, the slide valve—*d* being the high pressure portion of the slide, and *e* the expansive portion; *f*, an aperture by which the steam, on leaving the high pressure cylinder enters the expansive part of the slide; *g, g*, the passages leading to the upper and under sides of the piston in the expansive cylinder; and *h* the eduction passage leading from the expansive cylinder to the condenser. Thus, it will be seen that the steam from the eduction side of the high pressure piston passes through the passage *f* into the expansive portion of the slide, whence it enters the expansive or condensing cylinder at the same end as the high pressure steam from the boiler enters the high pressure cylinder, and the steam from the eduction side of the expansive piston passes through the passage *f* into the condenser.

Thus, the two pistons are being supplied simultaneously at the same ends, with steam of different pressures—and this, be it remembered, composed of the same water, and, consequently, the same heat: if we take the first, including the atmospheric pressure at 115 lbs. per square inch, and the second at an average gross pressure of 18 lbs. per square inch, the pistons being respectively ten and twenty-four inches diameter, and the speed of each 220 feet per minute, allowing 5 lbs. above the atmosphere, as the average resistance on the exhaust side of the 10-inch piston, we have then for it 1,640,540 lbs. lifted one foot high per minute—or very nearly 50-horse power; and for the low pressure, or 24-inch, cylinder, after allowing for resisting medium in the condenser 3 lbs., and taking its average gross pressure at 18 lbs. per square inch, we have a force on its piston equal to 1,491,600 lbs. lifted one foot high per minute, on 45-horse power. Here, then, we have a gross power equal to 95-horse, very nearly, each piston hath a stroke of two feet. Now, it is clear here, that to use steam at only 18 lbs., would be a dead loss of 50-horse power in 94 lbs. Again, if we inquire into the number of pounds of steam and coal per hour required to produce this power, we shall find it as follows:—With steam at 115 lbs. as above, it requires 1736 lbs. steam per hour, or 217 lbs. coal. Without expansion, at 18 lbs., it requires 4030 ditto, or 504 ditto. At 40 lbs., without condensation or expansion, it requires 5270 ditto or 659 ditto.

In the foregoing calculations, 8 lbs. of coal is the quantity taken as equal to convert 62 lbs. of water into steam. Again, by way of illustration, and to take the most unfavourable view—we will suppose that to use steam at 115 lbs. would produce a saving of only one-half on the present system of marine engines, we will take 1200-horse as the gross power of the engines in, we will suppose, the *Great Britain*, we have then a saving in a voyage to and fro between Liverpool and New York, supposing it to occupy 672 hours, equal to 828 tons of coal—supposing this to cost 10s. per ton, we have here a saving of 414*l.*; but I need scarcely point out that the saving would not stop here, as there would be 828 tons less useless freight. Nor does it stop here, for the machinery would be reduced at least one-fourth in bulk and weight; it is no exaggeration, if we take this as equal to another 414*l.*, or a clear gain equal to 828*l.* in each of such voyages: supposing, therefore, eight voyages in the year, the saving would amount to 6624*l.* annually; if this be the saving which would be realised in one vessel, what would be the saving on the whole of our marine steam-engines, to say nothing of locomotives and stationary engines, in Great Britain, together with the employment of the steam-engine throughout the world? In this representation, all that is material is based upon stubborn facts, which as long as the material laws continue what they are, will stand forth an unimpeachable and impartial witness. Are advantages as great as these to be suppressed, because some, who, from ignorance or other motives, choose to frighten the public by representations of danger from the use of steam at such pressures? If the knowledge we already possess be insufficient to dispel this groundless objection, I would propose the following simple and decisive experiment, which, if any amount of evidence could suffice to convince these men it would do so. Let us take two boilers, the one on the usual marine principle, and the other a tubular. In such I propose the steam to be got up in both to their fixed pressures—which, in the marine we will suppose is 18 lbs. or 20 lbs. to the square inch, and in the tubular 115 lbs. or 120 lbs. per square inch, the atmosphere inclusive in both cases, —the steam thus blowing away, let the safety valve of the low pressure boiler be loaded with one pound additional per square inch, at the same time loading the tubular boiler safety valve with 5 lbs. per square inch, continue the weights in this proportion until one of the boilers burst; do not stop here, but continue to load the valve of the other boiler until it burst also: we should then obtain evidence sufficient whereon to base two practical conclusions—viz., liability to explode of the two kinds of boilers; and that which is of greater importance, the destructive consequences by the explosions of each. It requires no prophet to foretell which way such an experiment would point mankind to evade danger, and insure comfort.

Birmingham, Dec. 16. T. Craddock.

METALLURGIC TREATMENT OF GOLD AND SILVER ORES IN HUNGARY AND TRANSYLVANIA.

Ores.—The ores that are treated in the smelting-houses or furnaces for gold and silver can be divided into three very distinct classes:—1. The auro-argentiferous ores, which comprise all the ores, whatever may be their nature, of which the precious metals constitute their principal value. They may contain copper and lead, but only as may be said by accident.—2. Pyritous ores are employed as sulphurets in metallurgic treatment, and are, therefore, appreciated according to the quantity of matter that they can yield, which ought to be at the rate of about 48 per cent. at least, for them to be received at the furnaces. They are chiefly composed of pyrites of iron, slightly auriferous, with traces of pyrites of copper.—3. Lead ores, consisting of argentiferous galenas, which ought to contain at least 30 per cent. of lead to be received at the furnaces, or 20 per cent. only if they contain besides one *loth* at least of gold or silver. The ores of the first class contain the following minerals:—Native gold, native silver, sulphurous silver, black silver, red silver, and tellurures of gold and silver. (The mines of Transylvania distinguish seven descriptions of telluriferous ores—viz., native tellurium (*gediegen tellur*), the yellow, the graphic, the white, the grey, the silver, and the leaf; but, in comparing the analyses that have been made up to the present, it appears evident that the number of specimens mineralogically examined, as well as chemically, are only of five distinct descriptions—viz.: 1. The native—a very rare mineralogical specimen, only met with in the mines of Faczebaja, near Zalathna.—2. The yellow or native telluric acid—very scarce, found at Nagyag.—3. That of gold, properly called T, mixed with various quantities of silver tellur, "*aq te*," antimony, lead, copper, &c., and contains, on an average, 26 to 28 per cent. of gold.—4. The tellururе of silver, *aq te*, mixed with a small proportion of tellururе of gold, *te*, and comprises about 60 per cent. of silver.—5. That of lead, which is the most common description of all these ores, and contains very little of silver, and 6 to 7 per cent. of gold). The sulphuretted and black silver ores are the most common, and it is probable that from these ores are composed the black veins that display themselves in the quartz, which form the greater portion of the silver ores at Nagy-banya and at Schemnitz. The red silver is not generally found in the large veins, and forms of itself transversal veins to those in which are found the former ores, which are at the same time less extended and less regular. Native silver appears to be rather rare, but native gold, on the contrary, is common, and constitutes all the gold ores, with the exception of the whole of the telluriferous ores, comprising three very distinct specimens in which gold is found combined with the tellurium, but these ores are true exceptions, as they have only been found as yet in three localities adjacent one to the other—viz., Nagyag, Offenbanya, and Faczebaja; in the latter one they form but a very small portion, whilst at the two former, particularly at Nagyag, they are very rich. It is rather remarkable, that these tellurures, the composition of which differ so greatly from other gold and silver ores, have an identical bed similar to them, which would, in some degree, indicate that they have made their appearance under the same circumstances.

With a very few rare exceptions the argentiferous and auriferous veins run through diuretic porphyries, formed by a green compact and amphibole paste and feldspar, in which are disseminated crystals of these two substances, the first one generally predominating. These porphyries contain accidentally crystals of quartz, and change sometimes their nature. They are generally hard, and resist like all other amphiboles, but near the beds they are generally half decomposed, friable, and penetrated with pyrites. This mineral is not always visible, but its presence is manifest by a yellow or ochrous character, which the porphyry assumes when it has been exposed some time to the damp air. The Valaques miners of Transylvania have given private names to these two varieties, which they are constantly meeting in their workings, and the distinction of which is most important in exploring. They have named *czoreszk*, or sterile rock, the resisting porphyry, which is always barren in precious metal, and "good stone," the decomposed porphyry and pyritous, which inclose the veins and are very numerous.

Under the head of treatment of gold and silver ores, it can be divided into four categories—viz., 1st, the gold ore, properly speaking, containing the gold in a native state, and little or no silver. 2d, the auro-argentiferous ores, the gold of which can be partly extracted by washing or amalgamation on coming out of the trough. 3d, the argentiferous ores, accidentally containing gold, but not in sufficient quantity that there would be any advantage in extracting it by the mechanical preparation. 4th, the selected ores, rich or poor in gold, for which the loss of washing would compensate far beyond the preliminary benefits of extracting of the gold. —The treatment of the ores belonging to the first category, do not undergo a metallurgic operation. They are only washed by a process which has been practised from time immemorial in Transylvania, and its extreme simplicity will sustain for a long time to come, notwithstanding the inconveniencies it presents. It consists in reducing the ore into a very fine powder, and washing it on inclined tables, covered with canvas, and the nearly imperceptible fibres of which are sufficient to stop the particles of native gold; the earthy matter, and the greater portion of the metallic substances, which always accompany gold, are carried away by the water. A washing in a wooden bowl, and an amalgamation in a mortar, terminate this operation, and yields the gold allied to a small portion of silver. These washings of gold are of great importance in Transylvania, not only in consequence of the value produced, but the number of hands employed. In the valleys that environ the small towns of Abrud-Canya and the Koros-Canya, all the inhabitants have been, since the occupation of the Romans, devoted to the working and exploring of the mines which, with a few exceptions, are granted freely to them. The principal beds or lodes of that country are those of Verespatak and Wullkoj. The first of which has acquired by its richness a great celebrity, and, notwithstanding that, for the last seventeen and eighteen centuries at least it has been the object of continued works, it is far from yet being exhausted. Each family in the country have a trough and one or two washing tables, consisting of an inclined plane, sustained by a rough brickwork or by *argil*, dammed up. The men extract the ore and carry it; the women and children supply the trough and wash the *schlich*. Sometimes they form partial associations or partnerships, but they are never numerous enough, so that this small industry can be greatly benefited, and, it is, therefore, easily conceived the difficulties which would be experienced in reforming a similar state of things; besides there would be scarcely any interest in so doing, as manual labour is at that very low rate, and that on the other side the auriferous beds, which have served so long as aliment to this population, have been so overthrown that it would be impossible in general to manage them properly: it would, however, perhaps, have been useful for the interest of all to encourage these unions or partnerships, by striving to organise them on a most extended scale, so as to get up workshops where the washing would have been carried out in a more economical manner and less imperfect, by which means they would have succeeded in reducing the immense losses that have been experienced by the present working. The profitable substance of the ores passed over the canvas is chiefly native gold; but there is also found a portion of silver which becomes so merged in the different combinations that the present method of washing now employed occasions nearly the whole to be lost. Several rivers of Transylvania possess auriferous sands, but they are seldom worked except by a few gipsy tribes, who only devote themselves to it in a very irregular manner. A company was formed at Vienna for the purpose of undertaking this washing on a large scale on the banks of the Aranyos; but this project, which appeared to offer many chances of success, was not able to be put into execution, for what reason we know not. In the second category are included nearly all the ores of Transylvania and Nagy-banya, intended for the furnaces, and a portion of those from Lower Hungary. Before taking them out of the troughs, and submitting them to the ordinary process of washing on tables, bowls, or shaking, they are placed upon cloths or canvas, or else in the amalgamating mills, so as to collect a certain quantity of native gold. The gold thus extracted has been designated under the name of "mill gold," since that, in certain localities, the Tyrolian mills have replaced the canvas, the use of which was general only a few years ago. The extraction of mill gold has a very great influence on the prosperity, and even the existence, of the greater part of the mines of Hungary and Transylvania. It alone constitutes frequently all the benefit of the workings, and, consequently, it supports the others that are of so poor a nature, as the expense of the mechanical preparation, and the melting, would absorb the value of the precious metals.

It is easily, therefore, to conceive the effect that the proportion of mill gold, although it only amounts to an excessively small fraction of the total mass of ores, still yields a considerable profit, as its extraction costs very little, or nearly nothing, whilst, were it dispersed over the total weight of the schlichs, it would not increase in a material manner their richness, and in all cases its value would disappear before the expenses of every description, which a complicated treatment requires, and it is only necessary to quote a few figures, to render this fact evident. It is calculated on a moderate scale, that if there is obtained 6 loths from 1000 quintals of mill gold in the ore, it covers all the expenses of the subterraneous working and the extraction. Supposing an ore containing this proportion of 6 loths of mill gold, and yielding in the ordinary washing 60 cwts. of schlich to 2 loths. Should they have submitted the mud to washing in the tables on coming out of the trough, without extracting the mill gold, it would have passed into the schlich, but not integrally, and would have undergone about the same loss, as the remainder of the precious metals—that is to say, 30 per cent. at least. There would remain, consequently, 4 loths to be divided over 60 cwts., or one-fifteenth of a loth per cwt. As we have before stated, the small quantity of gold thus extracted causes no loss in the value of the schlichs, and is sufficient of itself alone to cover all the expenses of working—therefore, a return of 6 loths per 100 quintals is considered as remunerative. Frequently, it occurs that mill gold is extracted from the ore, which only contains 2 loths. From the above, it will be seen that the value of ore in the trough, taken as it comes from the mine, is based on three elements—1, the quantity of mill gold in proportion to the 100 quintals of rough ore; 2, the proportion of schlich; 3, the yield of the schlich in auriferous silver and pyrites. In several establishments of Lower Hungary, the Tyrolian mills have replaced the covered canvas tables. In ordinary circumstances, that is to say, for ores having 5 loths to to 8 loths of mill gold, these apparatuses yield 1 loth more than the canvas. The consumption of mercury is at the rate of 1½ lbs. per 1000 cwts. of ore, and is, therefore, as may be expected, nearly independent of the yield of the ore, and proportionally to the total mass of matter that passes through the mill; therefore, this method can only be applied but to ores of a certain richness, but their yield must not be too high, otherwise a great portion of the gold will escape to the mercury. With canvas, a very rich ore can never be any obstacle, as they can increase at will the distance that the matter has to go, without increasing, to any very great extent, the expense of work—therefore, it is only in certain special cases that the mill has an incontestible superiority, but in general the canvas appears quite as good; because even when the mill is used, it has been acknowledged that there was an advantage derived for rich minerals in passing them, after having undergone the different apparatus to pass the muddy water over the covered canvas planks, as by this means there is not only a small portion of gold gained, but mercury also. With respect to very rich ores of native gold, and even those in which this metal is great, they generally submit to a careful washing the portion of the schlichs which occupy the tables, and which is still very rich. It cannot enter into our plan to describe here fully the series of operations of washing, so properly called, which present nothing particular, and are, at the same time, very imperfect. If we have alluded to the extraction of mill gold, it is only to show how it is that ores of an extremely low yield have influence in the greater part of the furnaces, and particularly in those of Nagy-banya and Transylvania. We have nothing to mention relative to the pyritous and lead ores, only that their *gangue*, or bed, the same as the gold and silver ore is invariably in quartz.

In our next we shall give the Frischen treatment in Transylvania.

Haley's Patent Lifting Jack.—This is a most important improvement on the old rack jack for lifting great weights, supporting beams, &c., in buildings undergoing alteration, and, from its simplicity, power, and economy in first cost, must come into very general use, if not entirely supersede the old and rude rack jack. Instead of a rack with ratchet wheel and pinion, in the one to which our notise has been directed, a powerful screw runs perpendicularly through the frame, having a claw at both top and bottom, so as either to raise the weight from above, or lift from below; this screw is acted upon by a pinion taking into an endless screw, on the axis of the handles outside the machine, by which means a most enormous power is obtained with comparatively little labour: the handle may, at any time, be left without a possibility of flying back, and is only half the weight of an ordinary jack of equal power, one capable of lifting five tons can be borne with ease by one man. All its working parts are most accurately finished, being engine cut, and it combines utility, safety, durability, and neatness at a cost not exceeding that of the old and unsafe jack. It is manufactured solely by Messrs. Galloway, Knot Mill Iron-Works, Manchester.

Improvements in Steam-Ship Propulsion.—We have alluded, in various Numbers of the *Mining Journal*, to the benefits likely to be obtained by the general introduction of the convex paddle-float, invented by Mr. Smart, for the propulsion of steam-ships, not only in our merchant service, but particularly in the Royal Navy, and which we are glad to find has been duly appreciated in a high quarter, as we are given to understand that it is intended to introduce the convex propeller on board several of her Majesty's steamers as an experiment, and, there is no doubt, from the success we have reason to anticipate will follow, it will be universally adopted when its great advantages are known to the maritime interest. We insert with pleasure a letter from Samuel Bromhead, Esq., on the comparative speed of the convex and common float:—

4, *Upper Byron-place, Dec.* 17, 1845.

Sir,—I have thought once or twice to forward the memorandum taken by me for your use, if it may at any time be of value when trying my boat, the *Water Sprite*, and I should say that this calculation could scarcely be considered a proof of the excellence of your patent, because I have not an engine more than one-half the necessary power of, or for, a boat of the size of the *Water Sprite*. By the common paddle on the still water of our float, we were able with the same pressure of steam to effect the mile in nine and a half minutes, whilst with your floats we were exactly seven and a quarter minutes; of course this does not include starting in either case, as the distance run was nearer two miles each time; the time was kept from the same point to another, one mile apart both trials, and the above was the result. My engineer has given her another trial since, but I was not present, though he tells me with fully equal result. I can only assure you, your paddles must and will come into more general use, as they are more and more tested, and, with best wishes, I am, Sir, your obedient servant, Samuel Bromhead.

To R. Smart, Esq., *Patentee of the Convex Floats, 5, Grimsby-place, Holwell, Bristol.*

PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR PARIS CORRESPONDENT.]

The deliberations of the Councils General of Agriculture, Commerce, and Manufactures, take place daily, but have at present been to no result. The newspapers during the week have been occupied in discussing the different questions submitted to the Councils, and especially those relative to the abolition, or modification, of the duties on iron destined for ship building, and for the steel manufactories. On these iron questions there are, as on all others, two divisions, both in the Councils and the press, one contending stoutly for the maintenance of the present prohibitive duties, the other recommending their modification. Which of the two will carry the day, it is impossible to predict. Dukes of England, in their views of the Corn Laws, are not much more wrong-headedly stupid, than the ironmasters of France, in their manner of regarding the present tariffs. Both bawl "protection," but neither rightly understand it; if they did, they would see that it is spoliation of the public on the one hand, and a deception to its partisans on the other.

In the ponderous documents, published by the Minister of Commerce for the information of his Councils-General, several pages are devoted to the question of the free admission of iron for shipbuilding, and several other pages to that relative to the admission of iron for the steel manufactories. I will give an abstract of the former, to enable you to arrive at a correct judgment, as they contain the sum and substance of all that has been said in the Councils.

First of all, the Minister of Commerce represents that, in 1827, the "*effectif*" of the French merchant marine was 14,322 vessels, of all sizes, with a tonnage of 692,125 tons; in 1844, it was 13,679 vessels, of 604,637 tonnage. But it is represented that an account must be made "of the reduction of 15 per cent., made in 1837, in the system of measurement, whereby the diminution of tonnage in 1844, as compared with 1827, will be, not, as it would appear at first sight, 87,488 tons, but only 2839. Besides, it is added, "It is certain that the administration has represented, as used up in 1840 only, a great number of vessels, which till then had figured on the registers, although for a long time unfit for service." "Upon the whole," observes the document, "it may be said, that since eighteen years the *effectif* has remained pretty nearly the same." Consolation is, however, drawn from the fact, that though the number of vessels and the tonnage has remained stationary for eighteen years, the loading of them has increased. Thus, for instance, in 1827 the French flag covered 791,131 tons of merchandise, whereas in 1844 it covered 1,256,098 —an incontestible proof, says the Minister, of the progress of the merchant marine. But then comes a drawback—that progress is woefully behind that of other countries, even in the international relations of France. Thus, in 1827 the part possessed by foreign vessels in such relations was 915,351 tons, whilst in 1844 it had increased to 1,116,539 tons, or 122 per cent. Moreover, it appears that the *effectif* of the mercantile marine of England is 3,588,387 tons, nearly six times more than that of France; of the United States, it is 2,158,603 tons, or more than three times. The causes of this inferiority in one of the essential elements of the grandeur of a nation, are represented to be principally the want of heavy merchandise (such, no doubt, as coals, iron, cotton, &c.); the small number of the scanty population of the French counties and colonies; and the dearness of naval construction, and the maintenance of crews. It is to provide against this inferiority that several measures have been taken by the Government, and, among others, that of ascertaining whether it be not advisable to substitute vessels of iron for vessels of wood; and whether, for that purpose, it be not necessary to permit the importation of foreign iron, either free or at very feeble duties, for naval constructions. "That is the question;" and, after posing it, the Minister goes on to discuss it *pro* and *con*. Partisans, says he, of the measure, insist that iron vessels, whether steam or sailing, are better than wooden ones; they are lighter, more solid, better sailers, last longer, and are, consequently, more economical than wooden vessels. They draw less water, and can carry heavier loads. They are less liable to sink, to burn, and to meet other accidents; and, lastly, are better for the health of the crews, and the safety of merchandise: hence they are rapidly being substituted for wooden vessels in England; and hence the marine of the East India Company is, in a great measure, composed of them. As a puissant means to lessen the chances of the maritime competition, the substitution of iron for wood, would enable France in time to efface the inferiority of her navigation. Everybody desires that, but there is a difference of opinion as to the means to be employed to obtain it, and especially as to whether privileges shall be accorded to foreign iron. Having said that the Minister goes on to discuss the other side of the question—our forges, says he, protest against any modification of the tariff as to iron; for, they say, that metallurgy in France is in progress, and that the prices of its products have sensibly diminished within ten years. This diminution is due to the efforts of that branch of industry, as well as to the great occasions for new employments of iron affording other industries; and a new employ of iron, such as that now afforded for shipbuilding, would have results not less favourable, and not less decisive for the general interest. Besides, this new employ is indispensable, for even lately the increase of products had caused the price of iron to fall below all reasonable limit, to 28 f. per 100 kil. [To this sentence a foot note is added, to the effect, that at present the price of iron is 33 f. to 34 f., at which it will be maintained, even if it be not increased on account of the enormous demand for railways.] The dearness of wood renders it necessary for the forges to extend their labours, so as to lessen their general expenses, and, therefore, all means of development that may offer should be preserved to them. Besides, there is no need to apply to the foreigner for the iron for shipbuilding. In calculating at 650 kilogrammes per ton, the quantity of iron necessary for the renewal of the naval *materiel*, and the probable time such renewal will require, about a tenth of the native production, or 30,000 tons annually, will be required. At 460 f. the ton, the amount would be 13,800,000 f., which is to be lost or gained to the French forges. With orders to that amount, French forges would take renewed activity, large classes of the population would be benefitted, great progress would be made, new ameliorations would be introduced in the national production, and fresh reductions in the prices. It is true that if the supply be preserved to the French forges, the shipowners will have to pay more than they would if it came from abroad; but in estimating that additional expense at 30 per cent., it will be only about 4,000,000 f. per annum, which it is not too much to expect navigation to bear for the benefit of a great national industry. To this line of argument, there are various replies—First, the quantity of iron necessary must be ascertained. If the substitution be confined to the ships engaged in international navigation, about 200,000 tons will be required: if it be extended to the coasting vessels, it can never be applied to all; and there will always be a great number of vessels of feeble tonnage, in the construction of which wood must be employed. Supposing the substitution of iron for wood to stop at vessels of thirty tons, the number of vessels of inferior tonnage would be 4779, of about 532,157 tons. What would be the quantity of iron per ton for the construction of a vessel of average capacity? Not, as one Chamber of Commerce said, 650 kilogrammes; nor 150 to 200, nor 300 to 400 kilogrammes, as other Chambers have said: but, according to the departments of Marine and Commerce, and the Chambers of Nantes, Lille, and Havre, 434 kilogrammes:—thus, making 230,956 tons of iron for the vessels of the 532,157 tonnage. The French forges might supply that quantity, which is about the tenth of their annual production; but could they do it on the terms which the marine require—at about the prices of foreign countries? Evidently not; for not being masters of the prices, they would increase with the increased demand. Even at the best, they would remain as they are; and at present they are too elevated, as is proved by the fact, that, in England, iron vessels have come into general use; whilst, in France, they have not been introduced; and the present situation would thereby be prolonged—the marine would continue to suffer—and the new orders expected by the forges would not arrive.

Would it not be better to come to the assistance of one industry, since it can be done without injury to the other, without depriving it of any advantage or of any profit which it is in a position to realise at present? The iron trade in France has been created and developed under a system which has secured pretty nearly the monopoly of the domestic consumption. It was not even modified in view of the enormous supply of rails for the railways; but the marine has suffered from that system, and it is time that relief be afforded it. From these considerations, it is proposed to the Councils to answer—1st, In the interest of the marine, and of commercial relations, should iron, declared for naval constructions, be admitted free, or at reduced duties? In the event of an affirmative answer, it is asked—2dly, Should the immunity be confined to vessels employed in international navigation, and only to those which, by their tonnage, are presumed to be specially destined to such navigation? Should it be accorded to all, without distinction?—3dly, Should it be extended even to coasting vessels, with or without limitation of tonnage?—4thly, Would it be right to accord a premium of 15 f. per 100 kil. to native iron employed in the construction of new vessels?—After some remarks, on coasting vessels, of no particular interest, the Ministerial document answers the last question by asking another, which is—"Would not the premium of 15 f. go against the object to be gained, and saddle the Treasury with a tax to the benefit of an industry already highly favour?" On this point, however, the arguments of the forgemasters are the same as have been already cited, and may be resumed thus.—Do not open our markets to the foreigner, when we can supply them; do not withdraw from the forges a protection which has produced such good results; do not deprive them of what will cause fresh progress—or at least, if you do, give them the premium demanded. Such is an abstract, or rather a literal translation, little or nothing being omitted, of the document on iron laid before the Councils General and the Minister of Commerce. It leads palpably to one conclusion, that the reduction is imperatively demanded. The Minister himself evidently is in favour of the reduction; but, if he had been disposed, he might have made out a much stronger case in favour of it.

The demand of the marine for iron vessels might have been represented as much greater; the means the ironmasters have of supplying it as much less. But, even with the case as it stands, the decision could not be doubted, if it had to come from impartial men. Unluckily, however, the Councils are not impartial. They are composed of men who have all some interest at stake; and the cotton men, the manufacturers, and the agriculturists, will, probably, [illegible] at the forge people to beat the shipowners, on condition that the forge people assist them to beat somebody else. Let us hope, however, that patriotism will have some little weight with these people—let us hope, in short, that they will be sufficiently enlightened to give a just decision. If they do, can the Minister of Commerce stop there? Can he refuse to railway companies what he accords to shipowners? Can he shear monopoly with one hand, and protect it with the other? We shall see.—*Paris*, Dec. 28.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

Bank Stock, 204
3 per Cent. Reduced Ann., 95¼ 5 ⅜ ¼
Consols for Account, 94⅝ ⅜ 5⅛ 5 4⅛
Exchequer Bills, 25 3 pm.
Belgian, 4½ per Cents., 96
Danish, 3 per Cents., 87½
Dutch, 2½ per Cents., —
Portuguese, 4 per Cents., 39½ 40
Russian, 5 per Cents., 113
Spanish, 5 per Cents., 20⅛
ditto, 3 per Cents., 40⅛ ⅜
Brazil, 5 per Cents., —
Chili, 6 per Cents., 53
Columbia, 6 per Cents., —
Mexican, 5 per Cents., 31⅛ ⅜
Peru, 6 per Cents., 42 1

THE SHARE MARKET.

MINES.—In reference to mining affairs, we can, on the present occasion, do little more than call the attention of our readers, to some observations and statistics in another part of our present number; the interregnum (if we may so term it) of Christmas-day, has caused a blank week in the share market generally, and mining property has of course borne its share of the quietude; as far, however, as business has been done, there is no cause for complaint, and there is every appearance of increased activity in this description of investment.

RAILWAYS.—In consequence of the return to power of Sir Robert Peel, and that a dissolution of Parliament will not take place, the share, as well as the money, markets have improved since Monday, and a material change for the better may be looked forward to as soon as Parliament assembles. This being Christmas week very few transactions have been entered into, but the market, on the whole, has been firm. Good paying lines have improved. London and Birmingham stock is quoted 221 to 222; South Western 75 to 76; Brighton 64 to 65; Great Western 80 to 83 prem.

RAILWAY MEETINGS.—On Monday last a meeting of the Launceston and South Devon Railway Company was held at the White Hart Inn, Launceston, for the purpose of considering the propriety of altering the old route by way of Milton Abbott to Lyndford, there to join with the North Devon line, and thus unite the Cornwall and the North Devon lines together—Mr. Thomas John Phillips, of Landw, the chairman of the committee, presided, and after a few observations of parties interested in the line, he put the following resolutions to the meeting *seriatim*, which were carried unanimously—viz.: "That the proposed deviation be adopted. That the capital of 300,000*l.*, required for the line now proposed, be raised in 12,000 shares of 25*l.* each, in the following manner:—The sum of 200,000*l.* to be contributed by the North Devon and the general shareholders, the latter not to exceed 100,000*l.*; and the remaining 100,000*l.* to be contributed by the South Devon, if they shall think fit to do so, otherwise that amount to be added to the contribution of the South Devon. That the portion of the capital to be contributed by the general shareholders be raised, by allowing each holder of a 50*l.* share to take one share of 25*l.* at par. That to make up the deposit of 10 per cent. required by the new Standing Orders of Parliament, a call of 5 per cent. be made on the old capital, on which 5 per cent. has been already paid, and a deposit of 10 per cent. taken on the additional subscriptions. That the accounts be prepared of the expenditure of the company, in respect of the bill, up to the time of abandoning the same. Any shareholder not willing to retain an interest in the undertaking may receive back the amount of his deposit, subject to a rateable deduction for the expense incurred." The meeting was very fully attended.—On the same day an extraordinary general meeting of the shareholders of the Blackburn, Darwen, and Bolton Railway Company was held at the company's offices, at Blackburn, for the purpose of taking into consideration a conditional arrangement which has been entered into between the directors of this company and the committee of the Liverpool, Manchester, and Newcastle Junction Railway Company, for leasing to them in perpuity, in case they obtain their Act of Incorporation, the Blackburn, Darwen, and Bolton Railway, upon certain terms. Among those present, was a deputation of two gentlemen from the proprietors resident in Hull, who had been instructed at a meeting, on the 18th inst., to procure, if possible, a postponement of the consideration of the amalgamation, until after the opening of this line. William Henry Hornby, Esq., chairman of the company, presided. He said, the terms of the proposed amalgamation had been approved of by the directors, and they were now submitted to the shareholders. After being read, Mr. Riggall, one of the deputation from Hull, moved that the question be adjourned *sine die*. The chairman put the motion for postponement, and it was carried unanimously. After a vote of thanks to the chairman, who, in acknowledging it, observed, that in the event of the proprietors being willing to lease the line, the Liverpool and Newcastle Company would have the first claim upon them. The meeting was numerously attended.—Meetings have been held at Daventry and Southam, in favour of the London and Birmingham Extension.

Notice has been sent to the shareholders of the West Midland, Manchester, and Southampton, and Swindon and Birmingham Junction, stating that the failure in the payment of the deposits having rendered it inexpedient to attempt the completion of this project, the directors have resolved upon returning the entire amount of the subscription.—Considerable complaints are being made in the neighbourhood of the line now constructing to Gainsborough, that the contractors are practising the truck system to a great extent. This is a crying evil, alike disgraceful to those who enforce it, and injurious to the labourer: a strike, under such circumstances, would be not only justifiable, but praiseworthy; and in the present abundant state of the labour market, men who left would immediately find employment and supporters, who would thus endeavour to banish this un-English practice from our land. Railway contractors ought to be the last to adopt such mean measures.

MESSRS. LAMOND'S SALES—TUESDAY.—Buckinghamshire (2*l.* 2s.pd.), 2*l.* 2s.; Tring, Reading, and Basingstoke (5*l.* 5s.), 2*l.* 18s.; Boston, Newark, and Sheffield (2*l.* 12s. 6d.), 2*l.* 2s.; Northampton, Banbury, and Cheltenham (2*l.*), 2*l.* 2s. 6d.; London and Blackwall Extension (3*l.*), 3*l.*; South Staffordshire (2*l.* 10s.), 3*l.*; Eastern Union Extension to Cambridge and Ely (2*l.* 10s.), 2*l.* 2s.; Eastern Union Extension to Norwich (2*l.* 10s.), 2*l.* 4s.; Ipswich and Bury St. Edmunds (4*l.*), 4*l.*; North Staffordshire, Churnet, and Potteries (2*l.* 2s.), 5*l.* 1s.; Leicester and Birmingham (1*l.* 2s.), 19s. 6d.; Great Southern and Western of Ireland (15*l.*), 18*l.* 15s.; Trent Valley, Midland, and Grand Junction (2*l.* 2s.), 2*l.* 2s.; Rhymney Iron Company (50*l.*), 30*l.*

FRIDAY.—Goole and Doncaster (2*l.* 2s. pd.), 2*l.* 5s.; Northampton, Banbury, and Cheltenham (2*l.*), 2*l.* 11s.; Great Luxemburg (4*l.*), 2*l.* 12s.; Leeds and Carlisle (2*l.* 12s. 6d.), 2*l.* 1s.; North Staffordshire, Churnet, and Potteries (2*l.* 2s.), 6*l.* 7s. 6d.; Great Paris and Lyons (2*l.*), 2*l.* 8s. 6d.; London and York (2*l.* 10s.), 4*l.* 5s.; London and York Extension (2*l.* 10s.), 2*l.* 19s. 6d.; Buckinghamshire (2*l.* 2s.), 2*l.* 6d.; Northampton, Banbury, and Cheltenham (2*l.*), 2*l.* 8s.; North Kent (2*l.* 10s.), 2*l.* 18s.; East Indian (5s.), 1*l.* 5s.; Liverpool, Ormskirk, and Preston (2*l.* 10s.), 3*l.* 13s.; Universal Salvage Company (5*l.*), 11*l.* 10s.

THE SHEFFIELD AND MANCHESTER TUNNEL.

The opening of this grand tunnel, on the Sheffield and Manchester Railway line, took place on Monday last, whereby the two points were connected throughout; it has cost 200,000*l.*, and has taken six years in being accomplished, piercing through the chain of hills between Lancashire and Yorkshire. The tunnel is a *chef d'œuvre*, and may be regarded as one of the greatest specimens of engineering skill, is 5,300 yards, or three miles and twenty yards, in length, being exactly midway between the termini of the line. It is fifteen feet wide, and eighteen feet sixteen inches high. It is adapted only for a single line of rails, and it will be worked by an engine which will be entirely confined to taking trains through each way, so that no collision can by any possibility take place. In addition to the security thereby induced, there will be an electric telegraph, which will convey signals through the tunnel in an almost incredibly short space of time. The level of the rails at the eastern end of the tunnel is nearly 1,000 feet above the level of the sea at low water. The depth of the lowest of the five shafts is 609 feet. More than half the work is through the solid rock, of what is termed by geologists the millstone grit of the lower bed of the coal formation, and the remainder passes through the slate and coal formations, and is entirely lined with soli andd substantial masonry. The works were commenced in the early part of the year 1840, so that the tunnel has been nearly six years in its construction.

On Saturday, Major-General Pasley, accompanied by Mr. Locke, the engineer-in chief, Mr. Jee, the acting engineer, and a number of the directors, made the special trip of inspection, when the general declared the tunnel to be one of the best works of the kind he had seen. He also went over the Ashton branch, and examined particularly the viaduct, the falling of which some time ago occasioned such serious loss of life; and he expressed himself amply satisfied with the manner in which the work had now been completed. This line is intended to form part of the Huddersfield and Manchester line, which will constitute the shortest communication between Manchester and Leeds.

FEMALE LABOUR IN COAL MINES.—It would appear that the county of Clackmannanshire enjoys the unenviable notoriety of still having the humane law brought in by Lord Ashley for emancipating the female from the degrading labour of the mine, evaded within its borders; three cases were brought before the sheriff a short time since, when the overman and one of the workmen were fined 5*l.* each. The sheriff addressed the court after the conviction, and strongly animadverted on the practice: he observed, that when the provisions of the Act came to be fairly carried into effect, the public and the colliers themselves would be convinced that the Legislature had judged wisely in passing such an enactment; it was degrading to see women and even girls employed below ground, dragging, or pushing, heavy waggons loaded with coal, which was not only beneath them in a moral point of view, but was ill-adapted to their bodily conformation; he hoped that soon something more than merely not giving their countenance to such practice, would take place, and that they would exert themselves at once to put an end to the practice.

RAILWAY SHARE LIST.

RAILWAYS.	Paid	Closing pr. last week.	Closing pr. last week.
Aberdeen	50	5	5½
Armagh, Coleraine, and Portrush—25*l* shares	1¾	1¾	—
Birmingham and Gloucester—100*l* shares	100	131	133½
Ditto New issue, 7½ dis.—25*l* shares	17½	31	—
Birmingham and Oxford Junction—20*l* shares	2	5¼	5¼
Bristol and Exeter—100*l* shares	70	75	83
Ditto New—33⅓*l* shares	2	6	9
Bristol and Gloucester—50*l* per shares	20	53	—
Caledonian—50*l* per share	5	12	14¼
Ditto Extension—50*l* shares	2½	2¾	3¼
Cambridge and Lincoln—25*l* shares	1¾	2¾	3¼
Ditto New—25*l* shares	1¾	2¾	3¼
Chelmsford and Bury	1¾	1¾	—
Chester and Holyhead—50*l* shares	15	13½	16
Chichester and Brighton	20	14	—
Clydesdale Junction	5	12	—
Cork and Killarney—50*l* shares	2½	3	—
Cork and Waterford—25*l*. shares	1¾	1¾	—
Coventry, Nuneaton, Birmingham, and Leicester—25*l* sh.	1¾	1¾	—
Cornwall—50*l* shares	3	1¾	—
Derby, Uttoxeter, and Stafford	2½	1¾	—
Direct Northern—50*l* shares	2½	1¾	2
Direct Manchester (Remington's)—20*l* shares	2½	1¾	2
Ditto Rastrick's	5½	3½	—
Dublin and Belfast Junction—50*l* shares	2½	3	—
Dublin, Belfast, and Coleraine—50*l* shares	2½	2½	—
Dublin and Galway—50*l* shares	4	3½	—
Dundalk and Enniskillen—50*l* shares	2½	3½	—
Eastern Counties—25*l* shares	14*l* 16*s*	19½	21¼
East Dereham and Norwich	1	1¼	—
East Lincolnshire	1¾	2	2½
Edinburgh and Glasgow—50*l* shares	50	67½	71½
Edinburgh and Northern—25*l* shares	1¾	4½	—
Edinburgh and Perth	1¾	3½	—
Exeter, Yeovil, and Dorchester—50*l* shares	2½	2	—
Gloucester, Aberystwith, and Central Wales—25*l*. shares	1¾	1½	—
Goole and Doncaster—20*l* shares	42*s*	2½	2¾
Grand Junction—100*l* shares	100	235	—
Ditto ½ shares—50*l* shares	17½	33	—
Ditto ¼ shares—25*l*. shares	—	32	—
Ditto 40*l.* shares, Liverpool to Manchester	4	51¼	—
Grand Union (Nottingham and Lynn)	1¾	1¾	1¾
Great Grimsby and Sheffield—50*l*. shares	5	10	—
Great Southern and Western (Ireland)—50*l*. shares	15	18½	20¾
Ditto Extension—50*l*. shares	7½	11¼	—
Great North of England—100*l* shares	100	208	212
Ditto New—40*l*. shares	5	42	46
Great North of Scotland	2½	3¼	3
Great Western—100*l* shares	80	144	145
Ditto ½ shares—50*l* shares	50	86	94
Ditto Fifths—20*l* shares	20	34	37
Guildford, Farnham, and Portsmouth—50*l*. shares	2½	2½	—
Harwich—20*l* shares	1	1	—
Hull and Gainsborough—25*l* shares	1¾	1	—
Hull and Selby—50*l* shares	50	100	102½
Inverness and Elgin—20*l* shares	1	—	—
Irish North Midland	1¾	¾	—
Kendal and Windermere—25*l* shares	1¾	12	—
Lancaster and Carlisle—50*l* shares	25	42	48½
Leeds and Bradford—50*l* shares	15	45	—
Leeds and West Riding Junction	1¾	1	—
Leicester and Birmingham—20*l* shares	22*s*	1	1¾
Leicester and Bedford—20*l* shares	22*s*	1¼	1¾
Leicester and Tamworth—20*l* shares	42*s*	¼	—
Liverpool and Leeds Direct—50*l* shares	2½	1¾	2½
Liverpool, Manchester, and Newcastle Junction	stock.	3¾	3¾
London and Birmingham	stock.	219	222
London and Birmingham Extension—25*l* shares	1¾	1¾	1¾
London and Blackwall	Av. 16*l* 13*s* 4*d*	8¼	9¼
London and Brighton—50*l* shares	50	59½	65¼
London and Croydon	Av. 13*l* 15*s* 9*d*	18¾	22¾
London and Greenwich	Av. 12*l* 18*s* 4*d*	10¾	10
London and South Western	Av. 41*l* 6*s* 10*d*	73	76
London and York—50*l* shares	2½	3½	4¼
London and Windsor—25*l* shares	1	1	—
London, Warwick, and Kidderminster—50*l* shares	2½	2½	—
London, Salisbury, and Yeovil—50*l* shares	2½	3½	—
Londonderry and Coleraine—50*l* shares	2½	5½	6
Londonderry and Enniskillen—50*l* shares	2½	5	—
Lynn and Ely—25*l*. shares	5	5½	—
Lynn and Dereham—25*l* shares	5	6	—
Manchester and Leeds—100*l* shares	76	130	131
Manchester and Birmingham—40*l* shares	40	70	73
Ditto ¼ shares—10*l* shares	4	9½	—
Manchester, Buxton, and Matlock—20*l* shares	42*s*	2¼	4¾
Manchester and Southampton	2	2½	3
Midland	Stock	139	154
Ditto Birmingham and Derby	Stock	110	112
Midland Great Western (Irish)—50*l* shares	2½	—	—
Ditto Extension to Sligo	2½	—	—
Newcastle and Berwick—25*l* shares	5	11	14¼
Newcastle and Carlisle—100*l* shares	100	113	—
Newcastle and Darlington Junction—25*l* shares	25	51¼	60
Ditto New (Brandling)—25*l* shares	15	45	51¾
Newport and Abergavenny	2½	2¼	—
Newry and Enniskillen—50*l*. shares	2½	1	—
Newark, Sheffield, and Boston—25*l* shares	2½	2¾	2¾
North British—25*l* shares	15	22	25½
North Devon	2	1¾	—
Northern and Eastern—50*l* shares	45	63	—
North Kent and Direct Dover—50*l* shares	2½	2½	3½
North Staffordshire—20*l* shares	42*s*	4½	6¾
North Wales—25*l* shares	3½	4½	3¾
Norwich and Brandon—20*l* shares	14	21	24
Northampton, Banbury, and Cheltenham	2	2	2½
Nottingham and Boston—20*l* shares	1¾	2	1¾
Nottingham, Erewash Valley, and Manchester	1¾	3	—
Oxford, Worcester, and Wolverhampton	13½	13½	14
Oxford, Gosport, Portsmouth, and Southampton—20*l* shares	42*s*	2¾	—
Portsmouth Direct—50*l* shares	2½	3	—
Preston and Wyre—50*l* shares	50	30	33
Richmond—20*l* shares	5	10	—
Rugby and Huntingdon—20*l* shares	1	1¼	1¾
Scottish Central—25*l* shares	7½	12½	14¾
Scottish Midland—25*l* shares	5	5	6¼
Sheffield and Lincoln—25*l* shares	1¾	3½	—
Sheffield and Manchester—100*l* shares	100	119	—
Shrewsbury, Wolverhampton, Dudley, & Birm.—50*l* shares	2½	3½	—
Shrewsbury, Hereford, and North Wales	2½	2½	—
Shrewsbury and Birmingham	2½	3½	4¼
Somersetshire Midland	2½	2½	—
South Devon—50*l* shares	20	28	—
South Eastern and Dover	Av. 33*l* 2*s* 4*d*	35	33
South Midland—20*l* shares	22*s*	4½	5½
South Wales—50*l* shares	2½	3½	3¾
Staffordshire and Shropshire—50*l* shares	2½	5½	—
Staines and Richmond—20*l* shares	1	1¾	1¾
Trent Valley—20*l* shares	2½	15	18
Trent Valley and Holyhead Junction—20*l* shares	1¾	1¾	1¾
Warwick and Cheltenham—20*l* shares	1	3½	¾
Waterford and Kilkenny—20*l*. shares	3	2	—
Welsh Midland	2½	2½	2
Wexford and Carlow	2½	2½	—
Wilts, Somerset, and Weymouth—50*l* shares	2½	2¾	3
Worcester, Shrewsbury, and Crewe Union	1¾	—	—
Yarmouth and Norwich—20*l*. shares	20	26	—
York and Carlisle	2½	2½	2½
York and North Midland—50*l* shares	50	104	107½
Ditto Scarborough Branch—25*l* shares	25	51	54
Ditto Selby—50*l* shares	20	70	76
Ditto Extension—25*l* shares	5	24	30

FOREIGN RAILWAYS.

Boulogne and Amiens—20*l* shares	8	7¾	11¼
Bordeaux and Toulouse and Cette (Mackenzie)—20*l* shares	2	1¾	1¾
Bordeaux, Toulouse, and Cette (Espalets)—20*l*. shares	2	1¾	—
Central of Spain—20*l* shares	2	1¾	—
Dendre Valley—20*l* shares	2	¾	¾
Dijon and Mulhouse—20*l* shares	2	2¾	1¾
Dutch Rhenish—20*l* shares	5	6¾	7¾
East Indian	¼	1	1¾
Great Northern of France (constituted)	4	10¾	15¾
Great Paris and Lyons—20*l* shares	2	2	2¾
Jamaica and South Midland Junction—20*l* shares	1	2¾	—
Jamaica North Midland	1	¾	—
Jersey	1	1	—
Louvaine and Jemappe—20*l* shares	4	1¾	2
Lyons and Avignon—20*l* shares	2	1¾	2¾
Luxembourg	2	2	3
Namur and Liege—20*l* shares	4	2¾	2¾
Orleans and Vierzon—20*l* shares	10	15	17
Orleans and Bordeaux—20*l* shares	6	9¾	11¾
Over Yssel—20*l* 16*s* 8*d* shares	4*l* 3*s* 4*d*	2¾	2
Paris and Lyons (Lafite)—20*l* shares	2	2¾	2¾
Paris and Lyons (Gannaron's)—20*l* shares	2	3	3¾
Paris and Lyons (Calon's)—20*l* shares	2	2	2¾
Paris and Strasbourg (Gannaron's)—20*l*. shares	2	1¾	2¾
Ditto (Compe de l'Est)	2	1¾	—
Ditto (Aymard's)	2½	2¾	—
Paris and St. Quentin—20*l* per share	2	2	—
Paris and Orleans—20*l* shares	20	46	47¾
Paris and Rouen—20*l* shares	20	37	—
Royal North of Spain—20*l* shares	2	1¾	—
Rouen and Havre—20*l* shares	16	25	—
Sambre and Meuse—20*l* shares	6	4¾	5¾
Strasburg and Basle—14*l* shares	14	10	10
Tours and Nantes (Mackenzie)—20*l* shares	2	4¾	4¾
Ditto (Lesebvre's)—20*l* per share	2	2	2¾
Verona and Ancona (Italian and Austrian)	3	1¾	—
West Flanders	4	3¾	4¾

PRICES OF MINING SHARES.

Shares.	Company.	Paid.	Price.
	BRITISH MINES.		
235	Andrew and Nangiles	25½	77½
4000	Bedford	2¾	5¾
100	Botallack	175	400
10000	British Iron, New, regis.	10	22
—	Ditto ditto, scrip	10	23 4
8000	Blaenavon	50	40 2
120	Brewer	—	40
128	Budnick Consols	—	45
100	Bwlch Cwmerfin	20	200
100	Barristown	17	260
320	Birch Tor Tin Mine	10½	14
5000	Con. Tretoil Mining Ass.	3	1
128	Cosheen	20	200
114	Charlestown	—	240
3200	Cornubian Lead Co.	3	1¼
128	Comfort	—	25
2560	Cook's Kitchen	—	8
1000	Carn Brea	15	120
1000	Callington	18	20
256	Caradon Wh. Hooper	9	10
256	Caradon Consols	45	70
256	Caradon Copper Mine	4½	6¼
256	Caradon Mines	4½	36
256	Caradon United	19	24
128	Creeg Braws	120	80
1900	Combmartin	5½	6
240	Craddock Moor	3	55
128	Condurrow	10	30
1000	Copper Bottom	1	5
1024	Devon & Courtney Con.	½	5
186	Dolcoath	—	80
1000	Dhurode	2	5
10000	Durham County Coal	45	9
128	East Pool	5	50
94	East Wheal Crofty	—	450
128	East Wheal Rose	50	1500
—	East Wheal Albert	1	5
256	East Wheal Alfred	2	10
9000	East Tamar Consols	1	3¼
123	East Wheal Seton	2½	14
512	Fowey Consols	—	80
244½	Grambler & St. Aubyn	—	50
100	Great Consols	1000	400
1000	Godolphin	—	35
256	Gonamena	30	120
20000	Galvanised Iron Co.	10	11½
100	Grogwinion	5	20
1000	Gunnis Lake	1½	3
128	Gover	23	200
10000	Hibernian	12½	1
1000	Holmbush	14	22
128	Hallenbeagle	—	50
1000	Hanson	5	3
800	Hawkmoor	3	6
1000	Harrowbarrow Old Mine	2½	2½
256	Herodsfoot	3	6
—	Ivy Tor	—	16
160	Levant	—	150
128	Lanarth & Penstruthal	—	150
1000	Lewis	5	6
128	Ludcott	3	3
256	Lambo	5	12
2048	Lamerhooe Wh. Maria	5½	—
20000	Mining Co. of Ireland	7	12
2800	Marke Valley	10	4½
200	Nanterrow Consols	10½	10
70	North Roskear	—	630
200	North Holmbush	—	15
100	North United	41	45
256	North Wheal Rose	22½	50
256	North Treburget	2½	10
100	North Pool	11	45
15000	Northern Coal Co.	23	2
128	North Wh. Providence	2½	10
1000	Nant-A'r-Nelle	2	2
600	Old Delabole Slate Co.	25	45
128	Par Consols	—	500
256	Penhallow Moor	15	5
128	Pen-y-Cefn Mine	50	55
100	Penrhiw	30	65
512	Plymouth Wh. Yeoland	1½	3½
10000	Rhymney Iron	50	33 4
256	Rose Consols	10	7
1000	Rosewall Hill	1	2½
1024	Roscarrock	2½	—
2500	Silver Valley	2	2½
800	South Towan	10	1½
1000	Stray Park	43	18
128	South Wheal Basset	—	237½
128	South Caradon	5	450
124	South Wh. Francis	—	40
256	St. Austell Consols	6	50
256	South Wheal Rose	2	3
128	South Yeoland	11½	15
260	South St. George	9½	14
256	South Trelawney	4½	13
256	Sourton Consols	½	5
	BRITISH MINES—*continued.*		
120	Trethellan	5	100
128	Trewavas	—	40
96	Tresavean	10	300
128	Tokenbury	102	60
256	Trenow Consols	—	170
120	Treviskey and Barrier	61	220
5000	Treleigh Consols	6	3½
9600	Tamar Consols	3	6½
6000	Tincroft	7	15
128	Trewellard	12	25½
1024	Trelawney Consols	1½	2
256	Ting Tang	52	52
4000	United Hills	5	4½
100	United Mines	300	900
6000	Wicklow Copper	5	18
512	West Fowey Consols	40	35
384	Wheal Franco	22	55
127	Wheal Virgin	—	20
256	West Caradon	40	375
3845	West Wheal Jewel	10½	3
—	West Kekewich Consols	—	3½
120	West Trethellan	5	40
128	Wheal Rose	40	20
256	West Wheal Tolgus	16½	16
1000	Wheal Harriet	½	2½
128	Wheal Penrose	—	5
128	Wheal Providence	16	120
68	Wheal Clifford	—	500
256	Wheal Albert	10	12
128	West Basset	10	24
128	Wheal Acland	13	14
256	Wheal Sisters	22½	73
99	Wheal Seton	150	600
200	West Seton	—	38
128	Wheal Henry	—	10½
110	Wheal Hope (Zennor)	14	18
256	Wheal Hope	7	4½
4000	Wheal Martha Consols	3	3
130	Wheal Trelawny	15	240
256	Wh. Mary Ann	5	50
256	Wheal Norris	9	12½
256	Wheal Trevenna	4	4
256	Wheal Trewennan	—	10
107	Wheal Trevilson	10	5
128	Wheal Catherine	5½	16
256	West Providence	—	7½
256	Wheal Robins	13	5
256	West Wheal Treasury	12	12
256	West Wheal Shephard	2	5
128	Wheal St. Cleer	21½	50
128	Wheal Reeth	1	60
256	Wheal Gill	17½	18
128	West Cargoll	2	15
1024	Wh. Mary (Calstock)	2	—
256	Wheal Mary	4	5
256	Wheal Concord	14	10
128	Wheal Venland	2½	5
256	West Wh. Friendship	2	12
128	Wheal Prospect	4	9
256	Wheal Victoria	2	6
240	Westerlake	3	3
1024	Wheal Maria	1	700
256	Wheal Fortescue	1½	22½
2560	West Wh. Maria	½	4½
128	Wheal Pollard	5	20
512	Wheal Sarah	2½	—
256	Wh. Cleveland	2½	5
256	Wh. Mexico	3	8
256	Wheal Boscastle	3½	9
265	Wheal Kendall	10½	11
128	Wheal Trannack	19	25
	FOREIGN MINES.		
5000	Alten Mining Company	14½	1
15000	Asturian Mining Co.	5	3½
10000	Anglo-Mexican Co.	100	3
3374	Ditto Subscription	25	4
2000	Bolanos	150	4
12000	Ditto Scrip	15	4½
10000	Brazilian Imperial	21	5½
10000	Cata Branca (Braz. Co.)	6½	—
12000	Cobre Copper Co.	40	19½
8500	Colombian Co. regis.	55	} 4½
5000	Ditto Scrip	—	
10000	Copiapo Mining Co.	14	1½
20000	General Mining Ass'n.	20	11
5051	Mexican Company	59	6
12000	Mocaubas & Cocaes	25	4½
29320	{ Rl. del Monte, regis. }	28½ {	3½
	{ Ditto unregistered }		4
	Ditto Red Debentures	—	19
	Ditto Black ditto	—	17
	Ditto Loan Notes	150	117
7000	Royal Santiago	10	15
2000	Pachuca Mines	3	3
11000	St. John del Rey	15	5
43174	United Mexican	28½	3½

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Last Div.	Traffic Returns. 1845			1844		
Arbroath and Forfar	15	£140,782	2½p.c.	£175	0	0	£122	5	9½
Chester and Birkenhead	15	520,640	2½	463	19	0	391	3	1
Dublin and Drogheda	32	631,258	4	603	3	3	508	6	5
Dublin and Kingstown	6	349,736	9	568	16	10	561	0	0
Dundee and Arbroath	17	153,598	4	214	5	10	217	19	11
Durham and Sunderland	19	302,118	2	456	7	1	335	13	4
E. Counties & North. & East.	124½	4,090,328	5	7036	0	0	4233	0	4
Edinburgh and Glasgow	46	1,686,226	6	2201	16	7	1798	9	4
Glasgow, Paisley, and Ayr	51	1,104,773	6	1784	8	1	1324	10	9
Glasgow, Paisley, & Greenock	23	806,134	2	680	4	5	669	4	0
Grand Junction Company *	98	2,597,317	10	—			*138	0	0
Gravesend and Rochester	6	85,000	5	112	19	8			
Great North of England	45	1,296,196	6	—			1830	6	7
Great Western	220	7,717,043	8	17355	4	4	16703	2	1
Hartlepool	—	—	—	979	0	11			
London and Birmingham†	176	6,997,065	10	32651	10	6	17517	0	0
London and Blackwall	4	1,078,851	1½	643	19	4	596	19	0
London and Brighton	56	2,653,673	4	4186	5	0	3639	3	0
London and Croydon	10	842,592	3½	1072	0	0	377	8	10
London and South-Western	93	2,620,724	9	5516	5	10	5671	13	10
Manchester and Birmingham	31	1,959,062	6	3538	10	4	3285	13	11
Manchester & Leeds	51	3,972,869	8	4857	11	0	5735	4	9
Manchester, Bolton, & Bury	10	805,968	5½	844	13	11	780	1	10
Midland Company	179	6,284,631	6	16231	5	4	10027	6	4
Newcastle and Carlisle	61	1,137,385	5	1717	13	2	1571	15	3
Newcastle and Darlington	22½	1,156,379	8	2454	7	9	1014	3	0
Newcastle and North Shields	7	316,869	5	410	0	2	332	15	10
Norfolk	—	—	—	1088	11	0	220	0	0
North Union, Bolton &c.	32	1,060,551	6½	1444	0	0	1470	16	0
Preston and Wyre	22	432,014	2	420	5	5	342	17	0½
Sheffield and Manchester	19	1,313,225	5	948	14	4	561	19	7
South-Eastern and Dover‡	88	4,284,924	3½	5451	16	1	4517	9	4
Taff Vale	30	611,073	3½	1162	7	3	826	13	10
Ulster	25	358,353	5	583	0	0	654	12	5
Yarmouth and Norwich	20½	250,037	5	—			220	3	11
York and North Midland	53	1,279,951	10	4757	17	2	2325	10	4
Paris and Orleans	82	2,082,916	8	5788	3	4	4297	0	0
Paris and Rouen	84	1,995,306	9	4626	0	0	3929	0	0

* The traffic return of this company is now included in the London and Birmingham.
† Including the Grand Junction Company. ‡ Including the Greenwich line.

WORK PERFORMED BY CORNISH ENGINES.

The number of pumping-engines reported for the month of Nov. is 36—the quantity of coals consumed being 2440 tons, lifting, in the aggregate, 24,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 55,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal. The following are those which exceed the average:

Mines.	Engines.	Length of stroke	Load in pounds.	Load per sq. inch on pist.	Strokes per min.	Consump. of coal in bus.	Million lbs. lifted 1 foot by consump. of 1 bush. coal	Average quantity of water per min.
Wh. Prosper	Western, 80-in.	9·7	87,177	13·5	4·6	2532	55·4	} 724·5
Ditto	Roberts's 70-in.	9·75	46,414	10·6	4·6	1512	57·0	
Godolphin	Sims's 80-inch	10·0	71,229	11·3	4·0	1700	63·2	} 761·8
Ditto	Roberts's 80-in.	10·0	75,477	12·0	6·3	2960	60·1	
Great Work	Leeds 60 inch	9·0	47,031	14·5	7·4	2146	57·3	176·1
Wheal Vor	Borlase's 80-in.	10·0	117,912	18·7	5·5	4144	64·0	561·0
East Crofty	Trevenson's 80	10·33	84,399	12·6	2·2	1272	57·0	124·5
Carn Brea	{ Sims's 50-in. combined }	9·0	45,201	17·9	3·9	805	68·7	182·0
United Mines	Taylor's 85-in.	11·0	91,670	14·6	5·4	2582	91·2	} 1287·0
Ditto	Eldon's 30-inch	9·0	13,631	16·0	8·8	673	61·9	
Ditto	Loam's 85-inch	10·0	89,341	11·8	5·2	2704	61·8	
Ditto	Hocking's 85-in	10·0	104,767	15·8	5·9	3807	63·8	
United Hills	Williams's 80	10·0	73,009	11·6	5·9	2364	61·5	410·0
East Wh. Rose	Penrose's 70 in.	10·0	41,152	9·6	2·9	752	61·0	} 541·7
Ditto	Michell's 70-in.	10·0	52,097	12·1	4·0	1335	59·0	
W. F. Consols	Deeble's 60-in.	10·75	32,133	9·2	3·5	627	63·6	277·2
Fowey Consols	Austin's 80-in.	10·33	70,600	12·6	5·3	1818	78·3	425·2
Par Consols	—— 50-inch	9·0	45,211	19·8	5·9	1343	62·8	305·6

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Dec. 20, was 19,340; amount of money, £80 11s. 8d.—(Last year, 87*l.* 0s. 11d.)

COPPER ORES.

Sampled Dec. 10, and Sold at Andrew's Hotel, Redruth, Dec. 24, 1845.

Mines.	Tons.	Price.		
United Mines	117	£3	9	6
ditto	111	3	2	6
ditto	107	7	5	0
ditto	100	7	16	0
ditto	97	3	16	6
ditto	95	3	0	6
ditto	90	4	3	6
ditto	86	3	12	0
ditto	83	5	5	0
ditto	80	7	4	0
ditto	78	4	8	6
ditto	76	6	6	6
ditto	75	3	12	0
ditto	60	6	5	0
ditto	43	4	16	0
ditto	34	4	7	6
Tresavean	80	3	6	0
ditto	79	4	12	6
ditto	78	5	3	6
ditto	76	2	6	6
ditto	69	4	5	6
ditto	56	3	19	0
ditto	39	1	7	6
South Caradon	119	5	3	6
ditto	91	5	8	6
ditto	61	4	6	0
South Caradon	57	£5	7	0
ditto	32	11	16	0
West Caradon	105	9	5	6
ditto	101	6	14	0
ditto	42	5	10	0
ditto	42	7	5	0
ditto	26	4	1	6
Wh. Maria	102	6	0	0
ditto	79	6	9	0
ditto	75	6	18	6
ditto	46	9	0	6
Par Consols	103	4	4	0
ditto	86	6	4	0
ditto	76	3	11	0
Trethellan	66	2	13	0
ditto	62	6	12	6
ditto	61	3	3	0
Treleigh Consols	79	3	10	6
ditto	51	6	11	0
Penstruthal	34	5	0	0
ditto	11	8	5	6
West Trethellan	36	3	1	0
North Downs	16	2	5	6
ditto	11	5	5	0
Tregothnan Con.	3	7	11	0

TOTAL PRODUCE.

Mines.	Tons.	Amount.		
United Mines	1334	£6507	12	0
Tresavean	477	1779	10	6
South Caradon	360	2052	1	6
West Caradon	327	2355	9	6
Wheal Maria	302	2056	1	6
Par Consols	265	1235	12	0
Trethellan	189	£779	9	0
Treleigh Consols	130	714	10	6
Penstruthal	45	261	0	6
West Trethellan	36	109	16	0
North Downs	27	94	3	0
Tregothnan Consols	3	22	14	6

Average standard, 107*l.* 5s.—Average produce, 7⅝.—Average price per ton, 5*l.* 3s. 0d.—Quantity of ore, 3495 tons.—Quantity of fine copper, 257 tons 1 cwt.—Amount of money, 17,968*l.* 0s. 6d.—Average standard of last sale, 96*l.* 10s. 0d.—Average produce ditto, 9⅛.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.		
Mines Royal Company	290½	£1478	6	9
English Copper Company	529	2964	8	0
Vivian and Sons	609	3612	3	0
Freeman and Co.	641½	2744	18	9
Grenfell and Sons	66	176	11	0
Sims, Willyams, Neville, Druce, and Co.	200	1100	16	6
Williams, Foster, and Co.	1159	5890	16	6
Total	tons 3459	£17,968	0	6

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Consols Mines 680—North Roskear 604—Fowey Consols 390—Hallenbeagle 316—East Wheal Crofty 295—South Roskear 265—South Wheal Basset 220—Wheal Harriet 190—Dolcoath 181—Creeg Braws 115—Wheal Clifford 96—North Pool 90—Tretoil 47—South Wheal Francis 39—Martin's Ore 15.—Total, 3543 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels—Carn Brea Mines 546—Tincroft 545 - Wheal Prosper 452—United Hills 278—Par Consols 255—Fowey Consols 185—Levant 181—West Wheal Jewel 177—Trenow Consols 167—Botallack 151—West Wheal Treasury 120- Wheal Sisters 96—Wheal Buller 91—Providence Mines 60—Wheal St. Andrew 41—Cook's Kitchen 37—Wheal Rodney 34—Michell's Ore 33—Wheal Trenwith 30—East Seaton 11.—Total, 3490 tons.

COPPER ORES.

At SWANSEA, for sale, Dec. 31.—Cobre 99—97—94—91—90—66—123—109—96—92—48—40—105—100—98—95—78. Santiago 100—96—92—80—62—37. Chili 95—91—86—80. San Jose in Cobre 100—96. Bearhaven 96—87. Cronebane 75—1. Tigrony 1. Molland 5.—Total 2801.

BLACK TIN

Sold on the 20th of December, 1845.

Mines.	Tons	Price.			Amount.			Purchasers.
Chyprase	2½	£64	7	6	£160	18	9	Daubuz.
ditto	4¼	62	5	0	263	10	0	Ditto.

Total tons, 6¾.—Amount of money, £424 8s. 9d.

LATEST CURRENT PRICES OF METALS.

LONDON, DECEMBER 26, 1845.

	£	s.	£	s.	d.
IRON—Bars..Wales..*ton*	0	0—	9	0	0
„ ..London	9	15—	10	0	0
Nail rods „	0	0—	10	10	0
Hoop(Staf.) „	0	0—	11	10	0
Sheet „ „	0	0—	12	10	0
Bars „ „	0	0—	11	0	0
Welsh cold-blast foundry pig	0	0—	5	10	0
Scotch pig *b*, Clyde	0	0—	3	15	0
Rails	11	10—	12	0	0
Russian, CCND *c*	0	0—	15	10	0
„ PSI	0	0—	16	0	0
„ Gourieff	0	0—	14	10	0
„ Archangel	0	0—	13	12	6
Swedish *d*, on the spot	11	10—	12	0	0
„ Steel, fagt.	0	0—	15	15	0
„ „ kegs *e*	0	0—	15	0	0
COPPER—Tile *f*	0	0—	92	0	0
Tough cake	0	0—	93	0	0
Best selected	0	0—	96	0	0
COPPER—Ordin. sheets, *lb.*	0	0—	0	0	10½
„ bottoms	0	0—	0	0	11½
TIN—Com. blocks *g* ..*cwt.*	0	0—	5	3	0
„ bars	0	0—	5	4	6
Refined	0	0—	5	8	0
Straits *h*	4	10—	4	11	0
Banca	4	12—	4	13	0
TIN PLATES—Ch., IC *i*, *box*	1	14—	1	15	0
„ IX	2	0—	2	1	0
Coke, IC	1	9—	1	10	0
„ IX	1	15—	1	16	0
LEAD—Sheet *k* ....*ton*	0	0—	20	0	0
Pig, refined	0	0—	21	0	0
„ common	0	0—	19	0	0
„ Spanish, in bd.	0	0—	18	10	0
„ American	0	0—	17	15	0
SPELTER—(Cake) *l*	0	0—	21	0	0
ZINC—(Sheet) *m* export.*	0	0—	30	0	0
QUICKSILVER *n* ....*lb.*	0	0—	0	4	6
REFINED METAL ....*ton*	0	0—	——		

a Discount 2½ per cent. *b* Net cash. *c* Discount 2½ per cent. *d* Ditto. *e* In kegs ½ and ⅝-inch. *f* Discount 3 per cent. *g* Ditto 2½ per cent. *h* Net cash. in bond. *i* Discount 3 per cent. *k* Ditto 2½ per cent. *l* Net cash. *m* Discount 1½ per cent. *n* Discount 1½ per cent. * For home use it is 32*l.* per ton.

The transactions in metals this week have been very limited; the only alterations to notice are in Scotch pig-iron, which is rather firmer. Foreign tin, owing to the recent arrivals, a little lower, and spelter is also a shade lower than last week's *Mining Journal*—other metals at last quotations.

PRICE OF TIN PLATES AT NEWPORT—Dec. 20.

	£	s.	d.		£	s.	d.
No. IC., per box	£1	13	0	*Wasters*	£0	2	0
No. IX., per box	1	19	0	„	0	3	0
No. IXX., per box	2	5	0	„	0	3	0

GLASGOW, DEC. 19.—The market has been quiet this week, caused most likely by the uncertainty which exists regarding political changes. Only two or three sales have taken place among the dealers at from 72s. 6d., cash, to 76s., four months' bill, and we quote their price—buyers at 72s. 6d., cash, and sellers at 75s. to 77s. 6d. The makers' price continues 85s. to 90s. cash, on delivery, and sales have been made at the former price during the week.—*Glasgow Herald.*

DEC. 23.—Prices are said to have improved these two days past—founders supplying their immediate wants have had to pay 75s. net. Several sales were made at 77s. 6d. and 80s., credit; while, at the same time, we believe, several thousand tons could have been procured at 72s. 6d., cash. The appearance of improvement is caused by our present political position—holders pausing until something definite takes place. This paper has, for some time past, been endeavouring to impress on the trade the propriety of an extension of malleable works, as a means of consumpt for pig-iron. We have just learned that an extensive firm, engaged in the manufacture of pig-iron, have surveyed ground near Coatbridge, and on which they are to erect a malleable work, on an extensive scale.—*Glasgow National.*

INDIAN METAL MARKET—*(By the last Overland Mail).*

BOMBAY.—The prices of sheathing and brazier's copper, and copper nails, have slightly advanced since our last. In British bar-iron there have been several speculative transactions, at rates varying from 28½ rs. to 30 rs. per candy, and 30 rs. to 31 rs. is the price now current for the article. We have heard of no sales in Swedish iron. British rod (round and square), hoop, and nails, exhibit little or no alteration in value. Sheet is about 4 annas per cwt. dearer than last month. In steel and quicksilver there is no change of importance, either in price or demand, but tin plates have advanced half a rupee per box, and sales have been made in pig-lead at from 3 to 6 annas per cwt. below our last quotation. Spelter is without the slightest inquiry, and quotations are quite nominal.

COAL MARKET, LONDON.

MONDAY.—Price of coals per ton at the close of the market:—Davison's West Hartley 16 6—Hastings' Hartley 15 9—Hedley's Hartley 14 6—Holywell Main 16 6—Morrison's Hartley 13 6—Old Pontop 13—Ord's Redheugh 14—Pontop Windsor 13—Taylor's West Hartley 16—Tanfield Moor 17—Townley 15 6—West Wylam 16 6—Wylam 16 3—Eden Main 16 6 to 16 9—Cowpen Hartley 16—Hartley 15—Sidney's Hartley 15 9—West Hartley Netherton 16 6—Wall's End Bewicke and Co. 16 9—Clarke and Co. 15—Clennell 15 6—Gosforth 16 9—Killingworth 16 6—Wharncliffe 16 9—Braddyll's Hetton 17 9—East Hetton 16 6—Haswell 18—Hetton 18—Lambton 17 3—Russell's Hetton 17 3—Stewart's 17 9—Hartlepool 17 9—Heugh Hall 16 9—Kelloe 17 3—Adelaide 17 3—South Durham 16 6—Tees Hetton 15 6.—Ships arrived, 31.

WEDNESDAY.—Adair's Main 15—Buddle's West Hartley 16—Hastings' Hartley 16—Hedley's Hartley 15 3—Holywell Main 16 6—Morrison's Hartley 13 6—Ord's Redheugh 14—Taylor's West Hartley 16—Townley 15 6—West Hartley 16 6—Wylam 16 3—Eden Main 16 9—Cowpen Hartley 16—Derwentwater Hartley 14 6—Hartley 15—Sidney's Hartley 16—West Hartley Netherton 16—Wall's End Clarke and Co 15 6—Clennell 15 6—Gosforth 17—Newmarch 16—Northumberland 16 6—Riddell's 16 9—Wharncliffe 16 9—Braddyll's Hetton 17 9 to 18—East Hetton 13 9—Haswell 18 6—Hetton 18—Lambton 17 6—Russell's Hetton 17 3—Stewart's 18—Caradoc 17 3—Heugh Hall 17—Kelloe 17 6—West Hartlepool 16 6—Adelaide Tees 17 6—Barrett 17—Brown's Deanery 16 9—Cowndon Tees 16 9—South Durham 16 9—Seymour Tees 17.

FRIDAY.—Davison's West Hartley 16 6—Ord's Redheugh 14—Townley 15 6—Eden Main 16 9—Wall's End Heaton 16 6—Killingworth 16 6—Wharncliffe 16 9—Haswell 18 6—Pemberton 16 9—Russell's Hetton 17 6—Heugh Hall 17—Tennant 16 9—Tees 17 9—Cowpen Hartley 16—Derwentwater Hartley 14 9—Morgan's Stone 24 6—Wigan Cannel 42—West Hartley Netherton 16.—Ships arrived, 20.

MEETINGS DURING THE ENSUING WEEK.

Society.	Address.	Day.	Hour.
Zoological	11, Hanover-square	Thursday	3 P.M.
Botanical	20, Bedford-st., Cov.-gar.	Friday	8 P.M.
Asiatic	14, Grafton-street	Saturday	2 P.M.
Westminster Medical	32, Sackville-street	Saturday	8 P.M.

NOTICES TO CORRESPONDENTS.

On the Production of Bar-iron direct from the Ore, will appear in our next, as also Mining in the Channel Islands—Mr. H. Smith on the Lamerhooe affair—Dr. Murray's communications—Mines in the Callington District, &c. &c.

THE MINING JOURNAL

And Atmospheric Railway Gazette.

LONDON, DECEMBER 27, 1845.

In reviewing the state of the mining interest during the past year, there is much room for gratulation amidst the wide spread tumult of railway speculation, which has now for two years overwhelmed the nation. All mining enterprise appeared to be annihilated, but it is pretty well apparent that that interest only lay dormant, and was gradually recruiting a giant's strength, to rise, like the "phœnix," triumphant from its ashes. Since the commencement of 1845, a gradual, and apparently permanent, improvement, has been taking place in mining affairs, both in England, and many other parts of the civilised world. In Cornwall new setts have been taken, and old ones, to a great extent, which had formerly been abandoned, taken up by capitalists, and worked in a spirited manner, to the advantage of themselves and the county—while, in the British mining share market generally, there is now a firmness and activity which has not been seen for years. In Spain, the several companies previously formed for working the extensive mineral districts of that prolific country, have been steadily progressing; even the arid plains, and rocky steeps of the north-east of Africa, and the still more distant and less known lands in our own colonies in New Holland, are being eagerly explored for mineral wealth, and the discovery of its hidden treasuries; the stars of Mexico and South America have appeared for some time past to be in the descendant, or to have arisen on other countries, and more promising climes—while, to come nearer home, we can with pleasure hail the present prospects of Ireland's mining districts, to which we have so often called attention, and which are at no distant period likely to prove, in every sense of the word, "a mine of wealth" to the "sons of Erin." This state of things proves that mining is becoming better appreciated, that instead of its being a wild uncertain speculation, it has become a fair field for legitimate enterprise; and that while some few years since it was looked upon as an arena for gambling, in which the knave, or the merely fortunate were only the successful players, it has now become a fair object of commercial enterprise, in which the merchant, the capitalist, and the private individual, may alike invest, with credit and with safety. We draw the attention of our readers to the generally improved prospects, which have begun to brighten the horizon of the mineral world, with unfeigned pleasure, and while we can thus look back on 1845 as a most favourable crisis to the mining interest, we believe we are fully justified in the anxious hope that the succeeding year will fulfil many of the expectations formed in the last, and keep up the favourable prospects of the rest. Let the system be but legitimately carried on, and its permanent success is certain.

We fear we have been, in some measure, misunderstood as to the purport of some observations made in this Journal, about a fortnight since, in reference to the lines of railway projected for the county of Cornwall; and, as our article on the subject has been transferred to the columns of two respectable journals in that county, we think it the more desirable to give again the right direction, and the true limit of our observations. They were directed exclusively against the Plymouth line, as incapable of meeting the transit requirements of the county, on account of the merely sectional ground it passed over, and also on account of the sea side terminus, which it sought as its eastern extremity. The idea of running the entire traffic of the county, through such a needle's eye as Plymouth—situated down in the remote angle of the area traversed—when the true line for all public convenience would not bring Plymouth within its horison; this seemed to us a course so misdirected, so far about, and, as a consequence, so dilatory and expensive, as to be on that one account wholly inadmissible. It appeared to us further, that the severity of its gradients, which, in about a distance of fifty miles from Falmouth to Launceston, had one gradient running the length of *twenty-eight miles*, at the maximum elevation of 1 in 60; this is the highest gradient, we believe, which is considered practicable by locomotive traction, and we thought that the laying on of the highest steam power upon a line in which the curves are both frequent and acute, would be productive of imminent danger in the working. We had in view also, the sharp and lengthened elbowing of the line near Liskeard, in order that it might reach the fountains of that estuary, and not ford the river itself, as in the draft of the former line, it was purposed to do; that river which, whether they cross at the Hamoaze, or evade by running north above its springs, is equally fatal to the exodus of a railway line at that side of the county. We looked at the line in the general impolicy of its course, and the all but insurmountable difficulty and heaviness of its works, and expressed an opinion that, under all the circumstances, there was no rational alternative but its relinquishment: and, we may add, in this place, that we think that would have been the resource of men who are making the great interests of the county their beacon and guiding star.

It is the essence of a good railway, that it should, as its objects and elements, embody the old transcendental maxim—the greatest good of the greatest number—and not, as this line, into the merits of which we are looking, reverse this wholesome rule, and lay itself out at the best, for the least advantage to any, and the smallest amount of good to all. This was the tenor and limitation of our observations on a former occasion. We regarded the Plymouth line as a bad line, and did not intend to offer any remarks to our Cornish friends, as to the relative merits of any of the projects, for a *Central* County Railway. Certainly, we think the Devon and Cornwall line a highly valuable project. It has, firstly, what the gentlemen of Lincoln's Inn call the *pre-emption* of the ground, the original and prior right. It accomplishes the bisection of the county into two tolerably equal halves, stretching forward immediately to Exeter—the true *point d'appui* for any trunk line emerging from the lower county; the requisite capital is subscribed, and the public has officially signified its acceptance and approbation of the line. There is another Central project, not so well known, or so thoroughly canvassed, as that of which we have just spoken—the Great Western and Cornwall Junction Railway, and to this line we think it but a matter of duty to invite the attention of the public of Cornwall in particular.

From an inspection of the sections, and general estimates of this line, as forwarded to Parliament, it appears to be some miles shorter than its rival, the Devon and Cornwall, its gradients and curves far easier, and its structural difficulties throughout its whole course far

less than those of its competitor; and the outlay to complete it, in consequence of its lesser length and lighter works, nearly a million sterling less than the line which it is quite a Parliamentary possibility it may supersede. We must say, that we think it would be worth the while of the public of Cornwall, to examine the properties of this line, for it is quite certain that Parliament is no respecter of persons; and the circumstance, that a line may not have yet obtained the highest patronage, or, perhaps, impounded its whole deposits, will be but a small argument against it, if the route it takes is as unexceptionable, and its structural facilities decidedly greater, than that line, which it would, under such circumstances, certainly displace. It possesses the *sine qua non*, the only essential condition of a Cornwall trunk line, of being central, its engineering works, according to the returns made, are lighter, its capital less, and the distance traversed to Exeter shorter, by some miles, than that of the competing line. It is to a wise option, to a well considered choice between these two, that we think it important to direct the attention of influential parties located in that district, and conversant with its railway wants, and acquainted with railway advantages. For ourselves, it may not be out of season to say, that we have not a shilling's worth of interest, present or prospective, in either of the lines. Our sole client is the public of Cornwall—and we cannot do better in its behalf than invite it to a fuller examination of the merits of the central lines proposed for the county.

The course pursued by the Duchy of Cornwall in granting mining setts, has caused considerable excitement in the county of Cornwall, from the introduction of a principle—if such it can be termed—which is at once calculated to destroy the mining interest, to disgust the capitalist and mine adventurer, and, in every sense, whether considered as regards the county itself, or the example set by the officers of the Duchy, we repeat is of no slight moment, and, although it may not be so seriously felt upon the introduction of a system so much to be deprecated, we feel assured that the time is not far distant when not only those connected with the Duchy, and others following their example, will be held up to obloquy; but, that a feeling of regret may be entertained both by the grantors and the grantees, which will in itself form a conclusive and demonstrative proof of the injury inflicted on the mining interest by the conduct of the worthies of Somerset House, who pride themselves on their board being presided over by the consort of our gracious QUEEN.

Many have been the quirks and manœuvres of those connected with the Duchy of Cornwall, either directly or indirectly as regards the mining setts, to which we have already made reference. The practice, it appears, has been not only to grant to the highest bidders in some instances, but to the more favoured ones in others; and while encouragement was given, and a degree of excitement wrought up, whereby offers were obtained for the several setts, a new feature we find has been introduced by those, who, from their connection alone with the throne and Government, should have induced them to lend encouragement to mining pursuits, productive as they are of national benefit, as well as those beneficial results which may arise from individual enterprise, whilst the conduct of the parties of whom we complain, is calculated to inflict an injury. It has been the usual practice in Cornwall for the lord to grant setts to parties, either known to him or well recommended, who he was led to believe would work the ground effectually, with the view to returns being made by ores, and not by the sale of shares—in fact, that mining, and not jobbing, should be the principle on which they acted; hence grants were made at one-sixteenth, one-eighteenth, one-twentieth, and even one-twenty-fourth, and one-thirtieth dues, with a view of encouragement to the adventurer, and, in the instance of the Carn Brea Mines, the dues were granted at one-twenty-fourth; but we should remember that this was in the time of the esteemed and lamented Lord DE DUNSTANVILLE, and Mr. REYNOLDS, his steward. A change has, however, come over the scene, and while stewards are no longer chary of receiving *douceurs* or bribes, Christmas boxes or New Year's gifts, whether at Midsummer, or any other period of the year, we find not only that the lords are willing to take a bonus on granting the setts, but have no objection to take a certain number of shares which they may sell at a premium in the London market, knowing full well what are the objects and motives of those to whom the grant is made. Were an instance required as evidence in support of this assertion, it would be sufficient to advert to the case of the Lamerhooe Mine, which has been discussed at considerable length in our columns, as to the *morale* of the several parties connected therewith, and we merely refer to it as one of the many, and which, from its late notoriety, may be more familiar to our readers. In this case, Mr. LETHBRIDGE grants the sett, for which he takes as a bonus 1000*l.*; he also stipulates that some 200 or 300 shares shall be given him, and which, at present prices, we may assume at 5*l.* per share, or 1500*l.* additional bonus. It may be asked by many innocent adventurers, who embark their capital alone, with the object of *working* the mine and not the shares, how is it that a sum should be thus given, and a deviation made from the general principle? This is readily solved; the parties thus taking to the bargain, at once introduce the sett, or rather, we should say, the shares, to their immediate friends, and the public at large. In pursuing this course, the grantees, by disposing of a portion of the shares at an advanced price, are enabled to pay the lessor, or lord, the sum agreed upon without any advance from their own pockets, and hence, as in the present case, some 8000*l.* or 9000*l.* remains to be divided as a surplus between the concoctors of the scheme.

It will be seen, however, that the Duchy authorities have improved upon the system, being determined, as DAN would say, "to bang the bannagher;" for not only does this liberal and influential power exact extortionate dues, but they require a certain per centage out of the *profits* which may be realised. It should be remembered, *en passant*, that in the payment of dues, the proportion taken by the lord is a part and parcel of the ores raised, no matter what their cost, or what the loss at which the mine is working, and hence to the lord it is a matter of no moment, whether a profit or loss is attendant on the operations of the adventurers; while we find the liberal commissioners of the Duchy of Cornwall, if they do not require, at least comply with terms proposed, that of receiving a certain per centage of the net profits, after payment of all the expenses of the mine, including even the dues, or royalty.

We have already noted one instance of the system observed by lords in Cornwall, and the "fawns" of London; and as illustrative of our remarks with reference to the Duchy property, we now put forward another, wherein the lion of Somerset House, with his useful jackalls, deals with the prey, whether found on the moors of Cornwall, or the precincts of the Royal Exchange. Thus it is, the sett of Wheal Williams, in Calstock, being unworked, some thirty-five or forty applications were made for the grant. If we are rightly informed, the successful parties are EDMUND TURNER, Esq., M.P. for Truro (who, of course, may naturally be supposed anxious to advance the interest of the county, a portion of which is represented in his person), and by certain friends of that gentleman, who, we believe, whether rightly or otherwise, have been classed as part and parcel of the Truro clique—the terms being one-twelfth dues, and 33 per cent. out of the profits; the sett is, on such terms, of course, granted—with what credit to the one party or other we leave our readers to judge. We think we have said enough to establish our position, and have only to regret, judging from the present state of things, as far as the Duchy is concerned, that we can only use terms of reprobation to "One and All."

If any further comment were necessary, it will suffice to state, that the shares in the Wheal Williams sett, thus acquired by the Cornish member and the clique, are offered in the London market at a premium of 50*l.* per share: we need hardly say that the results, beyond present gain, is one of the least consideration. This fact, we consider, at once establishes our argument and position.

Having frequently remarked, at some length, on the formation of new mining companies in Ireland, and the vast amount of good they would, doubtless, effect on that hitherto unhappy country, we are now well-pleased in being able to state, upon good authority, that the Southern and Western Mining Company of Ireland are progressing far beyond their most sanguine expectations. We have before us a circular, addressed to each shareholder, signed by Mr. W. CONNELL, of Cork, the secretary, in which we are informed, that the company have succeeded in purchasing the Gurtavallig Mine, on the south-east coast of Bantry Bay, on most favourable terms, together with the whole royalty of the estate in which this promising mine is situate; and which circumstance renders it necessary to increase the number of shares from 10,000, of 20*l.* each, to 15,000, of 1*l.* 5*s.* each; deposit 2*l.* per share—the Gurtavallig proprietors having stipulated for 5000 shares. Operations have been for the past three months carried on, and, although the labours of a handful of men cannot, in so short a time at this season of the year, exposed to the inclemency of the weather, on an open and bleak coast, be expected to do much, they have yet raised sufficient ore to pay treble the amount of wages, and there is every reason to believe that not only will the company eventually reap an abundant harvest, but that they will lay the foundation of a state of things which will open a wide field of labour for the entire population of the surrounding district—convert the wretched mud hovel into the comfortable cottage, the half savage inhabitant, into an industrious labourer, and a sterile, and unprofitable waste into wide spread fields for the operation of industry, and the production of wealth. We have often had occasion to speak of the promise of wealth which the mineral deposits of the counties of Cork and Kerry present, and regretted that they have never yet been worked to an extent sufficient to develope that wealth, and to spread around those blessings of which they are capable, and which, we trust, will now be followed up with that perseverance which a public company, with large funds at command, can best effect. The directors, we understand, are a few gentlemen of practical business habits, and of wealth and respectability in the city of Cork and the county, whose object is that of directing capital to undertakings in Ireland, that will pay a good interest to the shareholders; it will be the means of moralising the peasantry, improving he soil, make available its mineral and other natural wealth, whether in metals, marble, slate, coals, or the vast deposits of turf upon its surface, and perhaps, above all, crush the ridiculous cry of repeal—that incubus which has sat on the bosom of the enterprise of Ireland, for the sake of a few selfish landowners and oppressive middlemen, who, while exacting the last farthing, to add to their own overfilled coffers, have reduced the peasantry of Ireland to houseless misery, starvation—death.

We have, in various numbers of the MINING JOURNAL, alluded to the mineral wealth of Algeria, in iron, lead, copper, and even manganese. We perceive that a council has been appointed by the French Government, assisted by experienced mining engineers, to explore minutely this new colony, and to make a report to the Minister, at Paris, on the resources the country offers to mining enterprise. In consequence of its being known that some valuable mines do exist in the north of Algeria, and that in the province of Algiers iron ore is very abundant, a great stimulus has been given to speculate in working these newly acquired treasures. The number of applications to the Ministers of War and the Colonies for grants or *concessions* of mines has far exceeded the limits the Government had intended to have allowed; it has, however, made some very extensive grants, which may be considered as copyhold, or even freehold, to the adventurers, but under the most strict engagements on their part, that if they do not properly work such mines, and carry out, to the fullest extent they possibly can, the contract they have entered into, such mines will then revert again to the Crown. Within the last few years, the tide of emigration from France to Algeria, has been rapidly increasing, but particularly during the present year, and some first-rate miners have ventured to try their fortune in this colony, which many look upon as the future El Dorado of French conquest. France is deficient, as we have repeatedly stated, in iron, to meet her demand, and is, therefore, obliged to import annually to a very large amount, not only from this country, but Belgium, and particularly Sweden, for her steel factories. It is this dependance upon England and other foreign countries for this important metal, that so much grieves the anti-English feeling of our Gallic neighbours; and it is to the mines of Algeria that they look up to as the future source for their metallurgic richness, so as to throw off, if they possibly can, the dependent and hurtful necessity of importing from Great Britain even a ton of iron.

It will be some years hence before these mines—however rich they may be in reality, or represented so to be by speculators—can be worked on a scale sufficiently extensive to supply the increasing demand now making throughout France for rails, machinery of every description, and particularly for iron shipbuilding—which, in a few years hence, will require a considerable supply of cast metal, as it is rapidly progressing. There is very little doubt that this session the Chambers will greatly reduce the present import duty upon iron for railway, as well as building purposes, as the ironmasters throughout France feel perfectly satisfied that they cannot meet the demand. This reduction would be welcomed by contractors all over the country, as they have at present the greatest difficulty in procuring either wrought or cast-iron sufficiently reasonable to enable them to enter largely into speculations that would be profitable. The French Government is certainly making great improvements in northern Africa, not only by having good roads executed from Algiers to the furthest extremity of the colony under their possession, thereby affording every facility to commerce and traffic, but, by giving every encouragement to emigration and mining operations, which, no doubt, in a few years hence, will render Algeria not only a fertile, but a most prosperous and flourishing part of the globe—formerly the seat of pirates—and will open a wide field for mining enterprise and commercial industry.

A meeting of the adventurers in Stray Park and Camborne Vean was held on the 19th inst., where, from its having been privately convened by Mr. HUMPHREY WILLYAMS, we were, of course, not invited—a matter we can well understand, if the information we have received as to the nature of the proceedings be correct. We pass by any remarks which that gentleman may have thought proper to make as regards the observations which have fell from us, or which may have originated from correspondents, but at once advert to a point raised, and which forms a subject of interest and discussion, between the parties. We are well aware that the present must not be considered as a solitary instance, but it will well serve our object, and that of the proprietors, in giving it publicity.

The Stray Park and Camborne Vean Mines have been worked for many years at a heavy cost, attended by fluctuating returns—while the adjoining sett, known as St. Francis, we have good reason to believe, was promised to the adventurers by Mr. REYNOLDS, as steward to the late Lord DE DUNSTANVILLE, and the present Lady BASSETT. It appears, however, that Mr. HUMPHREY WILLYAMS has, subsequently, obtained a promise of the sett referred to from Mr. VIVIAN ROBINSON, who has succeeded to the office of steward to Lady BASSETT. We cannot suppose for a moment—following up the remarks in an article which appears in our columns of to-day—that either the steward, as representing Lady BASSETT, or Mr. H. WILLYAMS, as the lessee or adventurer, had been parties to anything in the shape of bonus—indeed, the very characters of Lady BASSETT, and the other parties, ought at once to preclude even a suspicion that such was the case.

If we are to judge by the course pursued by Mr. HUMPHREY WILLYAMS, it would, we must say, lead us to the belief that that gentleman was actuated only by the purest and most liberal motives, inasmuch that he not only convenes a meeting of the adventurers, but liberally offers them a moiety of the property he has acquired, and the profits which may accrue. Will it be believed that the liberal offer thus made was unanimously rejected? And why, forsooth?—simply because a previous promise by the previous steward had been made, and that the promise of a later date by the later steward was not considered good or valid, whether in a legal or moral point of view; and, moreover, being in favour of an individual, and not that of "One and All." The adventurers thanked the honourable gentleman, and declined the acquisition of a half, where they considered they were entitled to the whole. We should not thus have dwelt on the subject, or have attached to it so much importance, but that we are anxious those most interested in working mines in the county of Cornwall should have their attention directed to abuses thus proved to exist, and which are calculated so much to reflect discredit, and militate generally against mining pursuits.

PRICE OF IRON IN FRANCE.—The sales at St. Dizier on the 18th inst. were very fair for the provinces, and large lots realised 16*l.* 10*s.*, and small lots were paid even as high as 16*l.* 16*s.* The iron merchants of Paris have been purchasing very little lately, as they will not give 16*l.* Flat iron was sold at 14*l.* per ton, delivered at St. Dizier. On the whole, the iron trade is in a very dull state—the ironmasters wishing to obtain high prices, and the purchasers are very reluctant in making any extensive speculations. The important question now before the Minister of Commerce, as to the allowing the importation of northern iron at a reduced duty, occupies the attention of the iron merchants and contractors generally throughout France, and, as the forge or ironmasters wish to rise the price for 1846, very little will be doing until Government has decided this vital point, which will be so beneficial to the progress of speculation.

PURIFYING OF GAS.—M. Peclet lately laid before the Society of Encouragement of Paris, a machine for the purifying of hydrogen gas, used for the lighting of lamps, shops, &c. It is composed of a horizontal cylinder, partly filled with lime water, the axis or axle-tree of which is covered with diaphragms of metallic canvas, turned slowly; the gas is introduced into this cylinder, and is much better purified than in the common apparatus used, and was generally approved of by the committee of the society.

THE IRON TRADE—*(From a Correspondent).*—In the article, in last week's Journal, a mistake occurs as to the present aggregate sale price of Guest and Crawshay's make of iron—a cypher being left out, it stands 135,000*l.* instead of 1,350,000*l.*; the apparent gain to the above two establishments being 750,000*l.* I am quite sure this is what you intended that the statement should show; hence it would appear that, supposing the proprietors of the works in question should have had *no profit* in 1843, the deficiency now is made up, and a good round sum for a dividend.

COAL TRADE—CORPORATION DUES.—Another case respecting the question—what is, and what is not, coal? came before the magistrates at the Thames Police office, on Wednesday last, which is likely to have some effect on the sale of small coal at the pit's mouth in the northern collieries, which has for some time past been shipped to other destinations for the purpose of brick making. It appears that a Mr. Heron is largely engaged in the manufacture of bricks in the neighbourhood of London: and breeze and other ingredients of that description being scarce, he had made arrangements with some of the coal proprietors in the north for the purchase of the old slacks and siftings, upon which the rails were laid from the pit to the shipping place, on certain occasions where the roads had been broken up. On arriving in the port of London, and breaking bulk without paying the corporation dues, they were pounced upon by the officers, and the case was at once brought before Mr. Broderip.—Mr. Pearson attended for the corporation, and Mr. Pelham for the defendant.—Mr. Thomas Foster, the master of the ship *Hopewell*, was the party charged for breaking bulk of a cargo of coals without paying dues, and the defence was, that though acknowledged to be *fuel*, it was not imported as such, but for the purpose of making bricks, and that the general impression at Newcastle was, that on its arrival in London as "ashes," for the manufacture of bricks, it would not be subject to duty.—After a long discussion between the solicitors, with some observations from Mr. Broderip, as to the legal, as well as geological, explanation of the word "coal;" that gentleman gave his decision that, for whatever purposes the article in question was brought to London, there could be no doubt but that it was *coal*, and subject to the corporation dues, but on the understanding that there would be no opposition to paying the duties on all future cargoes, he should only inflict a penalty of 2*s.*—Mr. Pearson concurred in this decision, and Mr. Heron, who appears to have acted from a sincere belief that he was importing an unchargeable article, freely consented to pay for whatever quantity he might hereafter import.

SWANSEA DOCK COMPANY.—With the rapid increase of the produce and population of the South Wales iron and coal district, which, half a century since, was almost unknown and unappreciated, the accommodation for the vast increase of trade has not kept pace; the harbour of Swansea, from its situation at the mouth of the Bristol Channel, the most convenient for the great mineral district of South Wales, is at present totally inadequate to give the necessary shipping accommodation, and hence it is that the supply of all the great necessaries of life to the iron districts have been enjoyed by Bristol—while, had Swansea a proper extent of docks, from the large amount of capital invested in shipping in that port, whose vessels trade with Cuba, America, &c., the greatest portion of this trade alone might be calculated to be taken up by them, and a vast increase of the general trade of the port arise when railway accommodation shall have enabled the manufactures of Manchester, Staffordshire, &c., to be shipped as cheaply at Swansea as at Liverpool. Under these circumstances, the present company has been formed, for the construction of capacious and competent wet docks, with all necessary accessories and conveniences; a site for such purposes has been chosen of the most eligible nature; but few proprietors occupy the land required, and the interference with buildings or other valuable property (generally a heavy outlay in populous towns) will be but small. The construction of such works will materially improve the interest of the proprietors of the railways centreing in Swansea, and which must also add to the remunerative character of the Swansea Docks, which, from the vastly increasing commerce of the port and neighbourhood, will most probably prove a highly profitable speculation. From the statistics of the port, it appears that, although the first cargo of foreign ore arrived so recently as 1827, the quantity in the past year exceeded 45,000 tons. The increase in the number of ships trading to foreign ports has been as follows—viz.: 1814, 4; 1834, 46; 1840, 328; and in 1844, 605—viz., 168 inwards, and 437 outwards, with cargoes—while the increase in the number of vessels frequenting the port, exclusive of the above, was as follows—viz.:

Years.	*Vessels.*	*Register Tonnage.*
1843	4001	253,119
1844	4017	261,698
1845	4132	268,243

thus showing a highly satisfactory and increasing trade, and proving almost to a certainty that the establishment of the docks in question will return an ample per centage for investment. The capital is 200,000*l.*, in 10,000 shares of 20*l.*

VIADUCT OVER THE RHONE.—This most gigantic work of art, as imposing from its proportion as it will be remarkable in its details, will be raised upon the two banks of the Rhone, near Tarrascon, in order to form a communication between the railway from Cette to Beaucaire and that from Avignon to Marseilles. This viaduct will be four hundred metres in length, the length being calculated from one opening to the other. The impetuous waters of the river will pass the viaduct through seven openings of sixty metres each, and an idea may thus be formed of the colossal mass which this monument, of which the plan is at Tarrascon, will present. The author of the project has evidently wished to give a Gothic character to the abutments of the bridge, for which purpose he has rounded them and surmounted them with turrets, which on either side of the river will have the appearance of the clock towers of the cathedral; the parapets of the bridge will be sculptured work, and in such way as to afford an appearance both of solidity and elegance.

STUPENDOUS BRIDGE AT RUNCORN.—Some idea of the magnitude of the bridge proposed to be built for carrying the Grand Junction Extension Railway across the Mersey may be formed when we state that there are to be five wet arches of 280 ft. span, 100 ft. above high water mark at spring tides, and 168 dry arches of thirty feet span, and fifty-one feet high, making a total of 2490 yards of arching, which will be, when completed, the greatest work of the kind in Europe. Lord Francis Egerton, with a desire to meet the wants of this rising port, is about to erect docks of great extent on the shore of the Mersey; and will also apply, at the next session of Parliament, for a trunk railway; thus affording the port a ready transit for goods, in addition to the two canals in his Lordship's possession.

MINING IN 1845.—No. I.

The business in mining shares in 1844 far surpassed that of many previous years, and the past year has not only kept up the position of the market among commercial transactions, but has formed an era in the extension of mining itself, and one which, we trust, will prove a stimulus to future years' prosperity. In giving some idea of the returns of 1845, we will first take twelve mines, giving with each the quantity of ores raised, and the amount obtained—Carn Brea, 6674 tons, 39,462*l.*; Botallack, 1274 tons, 9656*l.*; South Wheal Basset, 2018 tons, 11,944*l.*; South Caradon, 2963 tons, 17,008*l.*; United Mines, 11,654 tons, 60,345*l.*; Tresavean, 5037 tons, 19,929*l.*; West Caradon, 3204 tons, 24,508*l.*; East Wh. Crofty, 5557 tons, 32,888*l.*; Wheal Maria, 8884 tons, 80,325*l.*; North Roskear, 3195 tons, 20,231*l.*; Poldice, 2120 tons, 9138*l.*; Holmbush, 1628 tons, 12,724*l.*—making a total of 54,206 tons, and an amount of 338,358*l.* The dividends paid during the year on the first eleven of the above, and the following mines, has amounted to nearly 200,000*l.*—East Wheal Rose, Tincroft, Wheal Friendship, Fowey Consols, Par Consols, Trethellan, Trenow Consols, Treviskey and Barrier, Wh. Brewer, and Tamar Consols.

Among the dividend-paying mines of Cornwall and West Devonshire, we may here enumerate the following as being especially worthy of notice:—East Wheal Rose is now paying dividends of 360*l.* per annum, besides bonuses; the present market price per share is 1500*l.*—being equal to three and three quarter year's purchase. The Devonshire Great Consols, of which "Maria" is the only sett yet in effectual work, has paid at the rate of 80*l.* per annum—the price of a share is now quoted at 700*l.*; consequently, about eight and a half years' purchase; North Roskear, 180*l.*, 600*l.*—years, three and a quarter; East Wheal Crofty, 120*l.*, 400*l.*—years, three and a half; South Caradon, 75*l.*, 450*l.*—years, six; West Caradon, 75*l.*, 700*l.*—years, nine; Botallack, 60*l.*, 400*l.*—years, six and a half; Trethellan, 30*l.*, 100*l.*—years, three and a half; Carn Brea, 12*l.*, 100*l.*—years, nine. There are other mines in the share list probably of equal value with the foregoing, which we shall notice in our next. The following it is fully expected will, if not pay dividends, in the course of the coming year, at least pay cost:—Seton, Callington, Wh. Sisters, Wh. Franco, East Tamar, Barristown, North Wheal Rose, Wheal Trelawney, Bedford Consols, Marke Valley and Lanivet, West Wheal Maria, Fortescue, Devon and Courtney Consols, Andrew and Nangiles, Herodsfoot, Gunnis Lake, West Wheal Tolgus, Silver Valley, Harrowbarrow Old Mine, and Hawkmoor, these latter being in the eastern district. On comprising our mining share list of the last week of 1844, with that in our present Number, it will be found that there has been added during the year, sixty mines, or an addition equal to 60 per cent.—the former number being 104, and the present 164. Some of these are new setts, but the majority are familiar names, which, from the falling off of mining share business during successive years, had been left out as actually never heard of in the market, yet among them are some now paying mines.

One more observation in the way of statistics—among the new mines which have been introduced within the past year, or, at all events, in the previous one, as showing great prospects at a comparative small outlay, we may notice first, the Devonshire wonder, Wheal Maria, with 1*l.* paid, worth 700*l.*; Fortescue, 1½*l.*, worth 22*l.*; Mary Ann, 5*l.*, 50*l.*; Trewennan, 10*l.*; Wheal Seton, 38*l.*; Sourton Consols, 5*l.*; St. Austell Consols 6*l.*, 40*l.*; South Wheal Francis, 40*l.*; North Treburget, 10*l.*; Lambo, 5*l.*, 12*l.*; Gover, 23*l.*, 200*l.*; Grogwinnion, 5*l.*, 20*l.*; East Wheal Alfred, 2*l.*, 10*l.*; Budnick, 45*l.*; Craddock Moor, 3*l.*, 55*l.*; and Condurrow, 10*l.*, 30*l.*

This hasty sketch will give a general view of the present state of our Cornish mines, and in our next we shall take a more extended view.

VALUE OF CANALS AS JOINT-STOCK PROPERTY.

Joint-stock companies have, within the last half century, increased to an almost incalculable extent, and are still increasing, and have in a social and commercial point of view, been the means of producing the majority of those gigantic works, and noble institutions, which render this favoured island the wonder and admiration of the world. Among the very numerous undertakings which have been carried out by these bodies, which private wealth never could have accomplished, and to many of which Government most probably would never have lent its aid, some few have proved a certain loss to the proprietors, some have paid a moderate interest on the capital, others have proved a source of revenue far above the commonly rated value of property, and a few have returned an enormous amount of interest; the principal among this latter description is canal property, on which large fortunes have been raised, and as these are likely now to be greatly interfered with, if not annihilated, by the construction of railroads, we have collected some particulars of their present position, to place before our readers, as a matter of reference at a future time, when it is not improbable that canals, like all other sublunary matters, will be only noticed as among the things that were. The following table will show their relative value:—

Canals.	*Price p. sh.*	*Div. per ann.*	*Per ct. per ann.*
Loughborough	£143	£140	£98
Leeds and Liverpool	100	168	68
Erewash	100	64	64
Oxford	100	60	60
Coventry	100	50	50
Neath	100	40	40
Stafford and Worcester	140	56	40
Cromford	100	28	28
Shrewsbury	125	30	24
Birmingham	35	8	23
Monmouthshire	100	20	20
Melton Mowbray	100	20	20
Warwick and Birmingham	100	18	18
Warwick and Napton	100	16	16
Grantham	150	12	16
Derby	100	16	16
Glamorganshire	172½	27½	15⅞
Barnsley	160	24	15
Leicester	140	20	14⅓
Grand Junction	160	14	14
Stourbridge	145	40	14
Ashton and Oldham	98	10½	10⅝
Leicester and Northampton	83½	8½	10
Montgomeryshire	100	10	10
Somerset Coal	150	15	10
Severn and Wye	27	2⅝	10
Worcester and Birmingham	78½	8	10
Rochdale	85	8	9½
Peak Forest	78	6	8
Ashby-de-la-Zouch	113	8	7
Brecknock and Abergavenny	150	10	6⅔
Ellesmere and Chester	133	8	6
Regent's (London)	33½	2	6
Somerset Coal Lock Fund Stock	12½	¾	6
Wilts and Berks	67½	2¼	3⅓
Kennet and Avon	40	¼	2

Thus it will be seen that, with the exception of *two*, there is not one out of thirty-six canals, but what has paid from 6 to 10 per cent., while the others have ranged from that figure to 20, 30, 60, and one even to 98 per cent.—an average of return unprecedented in joint-stock undertakings—(excepting perhaps a few of the earlier assurance companies)—whether railways, banks, docks, or others.

Exportation of British and Irish Minerals.—The following are the declared values of the exports of British and Irish minerals, in the ten months ending November 5, 1845, compared with the exports in the corresponding periods of 1843 and 1844:—

	1843.	1844.	1845.
Coals and culm	£602,423	£569,090	£841,687
Metals—viz., Iron and steel	2,187,537	2,850,571	3,080,964
Copper and brass	1,414,853	1,440,955	1,502,941
Lead	238,199	235,155	192,695
Tin, in bars, &c.	93,855	67,817	45,608
Tin plates	344,437	417,643	519,493
Salt	183,424	195,572	186,888

Manufacture of Iron.—The value of iron for manufacturing purposes is it seems, considerably deteriorated by frequent change in the mode of transport, and exposure to the atmosphere. A proportionate oxidisation ensues; and when it reaches its destination, it is so much per cent. less valuable than if conveyed at once, and almost uncooled, from the furnace to the workshop or factory. What can be done with it in this condition is illustrated by the following remarkable fact:—Thirty-one pounds of Shropshire iron has been made into wire upwards of one hundred and eleven miles in length; and so fine was the fabric, that a part of it was humerously converted, in lieu of the usual horsehair, into a barrister's wig! In order to effect this extraordinary tenuity, the process consists of heating the iron and passing it through rollers of eight inches diameter, going at the rate of four hundred revolutions per minute, down to No. 4 on the wire-guage. It is afterwards drawn cold, at Birmingham or thewhere, down to the extent of 38 on the same guage, and so completed to else surprising length of one hundred and eleven miles.

EXTENSION OF, AND ECONOMY IN, THE USE OF GAS.

The almost universal adaptation of gas at the present day to the purposes of artificial illumination, renders any improvement in its manufacture, whether as regards economy in production, safety in its use, or increased brilliancy in its results, of the utmost public importance, and which would, doubtless, if properly brought forward, prove remunerative to the promoters in proportion to its excellence. More than one attempt has been made to introduce to public notice a system of gas lighting for domestic use, by which it could be generated on the premises, and produce a brilliancy of light at a greatly reduced cost, but none have as yet completely succeeded. The "Pellatan light," "Shillibeer's patent," and others, seem to have been completely extinguished, and the public are left to the "Hobson's choice" of gas at a large cost, or none. A new light, however, appears to be about to shine upon us; and, if what we have seen in the arrangements, and is stated in the prospectus of a new company just put forward, under the title of the Universal Gas Company, can be borne out, we think there can be little doubt of complete success. This company is formed for carrying out, and working the, patent of Henry Francis, Esq., of Elizabeth-street, Eaton-square, for the purpose of enabling small towns, villages, lighthouses, dockyards, colleges, churches, hospitals, theatres, public offices, manufactories, printing offices, prisons, barracks, railway stations, lunatic asylums, schools, and other large buildings, to be lit at a most moderate cost; and so portable and compact is the apparatus, that it can be fitted up on any description of building, or at the kitchen range of any mansion, without at all affecting the domestic interest, either by lessening the heat, or intruding on its limits; and the fire in ordinary use will be ample to generate the gas, and produce steam, if required, for warming the premises. It is stated in the prospectus, "that the most eminent chemists and engineers unite in opinion, that the invention is not only practicable, sound, safe, and free from smell or annoyance, but the gas produced is far superior to that which is now used in the metropolis. It possesses more illuminating power, gives a better light, and in point of duration will burn longer than the gas now in use, in the proportion of 40 per cent. in favour of the invention. The great saving to the consumer, the small portion of room that is requisite for the erection of the apparatus, the simplicity of its working, the purity and brilliancy of the gas, only require to be known in order to insure the invention being generally adopted throughout the kingdom; and although the public can be supplied at one-third less expense than at present, without risk or inconvenience, the company can confidently hold out to the shareholders a return upon their capital of not less than 50 per cent."

These observations are worthy of serious consideration to every individual or body of consumers, as well as to capitalists, and, although small progress has yet been made in establishing domestic gas manufacture, we believe it to have arisen more from the dread and repugnance in having the inflammable vapor generated on the premises, than from any difficulty in the system itself, and, when we find that, in carrying out this invention, there will be none of the heavy expenses connected with other gas-light companies, such as large establishments for the manufacturing of gas, the erection and working of furnaces, steam-engines, laying down, taking up, and repairing of pipes, poor rates, &c., but that the whole will be conducted at a comparatively trifling expense, and the apparatus be manufactured by the company at their establishment, erected under their superintendence and at their expense, there can be nothing to doubt on the score of economy, while, in the present advanced state of chemical knowledge, when the nature and proper application of the permanently elastic fluids are so well known, any person of common ingenuity could be instructed in a day in the management of a domestic gas apparatus. We have been favoured with an inspection of the system, as applied at the establishment, which is very extensive, and the retort takes no more room than a small oven beside a kitchen range, while the purifier is about the size of a lady's small work table, and placed in a corner. From this hasty inspection, the plan appears to us highly successful, but we shall further investigate its merits.

The England Life and Invalid Hazard Assurance Company.—A preliminary notice of the formation of a new assurance association under the above title has just appeared, having for its object the filling up that deficiency which exists in the present system of life assurance by the general refusal to insure lives unless in robust health, from which circumstance a large proportion of the population are shut out entirely from its benefits. This projected company will, in a great measure, adopt the principles of fire assurance, and will effect assurances on lives deviating in various degrees—from a state of full health to a precarious and even dangerous condition—they will thus have "hazardous," "double" and "treble hazardous," &c., and offer advantages to those whose lives are almost hopeless, who would wish to avail themselves of the principle, but are entirely shut out by the present system. Persons engaged in dangerous undertakings, and the numerous cases ineligible under the present arrangements, will be assured by this company, and those profitable risks refused by the present offices, but where the risk is merely imaginary, will be the peculiar objects of the company. The general business of this company will comprise the usual routine of assurance business, and the advance of money on freehold and other landed property, and on approved railway shares, scrip, and contracts for railways.—An important question arises in the investigation of this subject, which, probably, has been lost sight of by assurance companies generally—the very foundation of the principle appearing to be, that none but really sound lives are eligible, and that there can be no security to the assurers in taking an assurance on an invalid life; this question—viz., Can the chances on invalid lives be sufficiently calculated to insure the company from general loss? we should consider of easy solution: in the present state of statistical knowledge, as well medical as moral and political, there can be but little doubt on the subject, and that the risks arising from lives permanently diseased can be as easily ascertained as that on sound lives. In the bills of mortality, in the metropolis as well as in the provincial districts, it is, at stated periods, ascertained, by registration, what diseases are the most prevalent in certain localities, and what the most fatal; and, from such data, there can be no question of the possibility of forming tables which will securely provide for every casualty. Again, medical science has, in connection with scientific drainage, ventilation, and cleanlier habits in general, within the last thirty years, actually prolonged the duration of human life—perhaps more so of the invalid, than of the robust and healthy; and it appears that, if, at the period of the first establishment of assurance companies, they were not in error in charging exorbitant premiums, and refusing any but healthy lives, at all events the time has now arrived when the principle must be greatly extended, and that portion of our fellow-creatures who are unfortunately labouring under constitutional or local disease, have the blessings of life assurance placed within their reach—and numerous will be those who will avail themselves of them; and, by the peace of mind which will arise from the conviction, that, in case of their decease, their families are provided for, actually prolong their own lives, to the benefit of the assurers. The capital is to be 1,000,000*l.*, in 50,000 shares, of 20*l.* each—but it is expected that not more than 5*l.* per share will be required.

Mineral Resources of Australia.—For some time past, "a rumour with her hundred tongues" has assigned to one particular district, about eighty miles northward from Adelaide, an amazing pre-eminence in mineral wealth, in the shape of a monster lode or vast deposit of copper ore, traceable to the extent of fifteen miles in length, carrying with it a visible breadth of from fifteen to twenty feet, and yielding surface copper in sufficient abundance to load hundreds of drays with the loose mineral. It appears that a shepherd from the district alluded to (or if another district, for others are confidently spoken of, rivalling the first in mineral riches) lately brought into Adelaide some remarkably rich specimens, and information so explicit as to have had the effect of rousing a number of colonists, not easily influenced by anything speculative. These gentlemen at once commissioned Mr. Finke to accompany the reputed discoverer, who not only found his report well grounded, but made some other brilliant discoveries himself. To make assurance doubly sure, however, the scene of this extraordinary mineral wealth has been visited by several gentlemen, possessing not only a good knowledge of minerals, but who, having made themselves acquainted with the operations at the successful copper mines at Kapunda and Montacute, can draw a just comparison between those valuable properties and the newly-examined champion lode, which Mr. Finke has examined to the extent of about a mile and a half of its presumed great length, and found to carry a surface breadth of from six to twenty-three feet. Among other visitors to the spot, we may mention Mr. Matthew Moorhouse, who not only confirms the fact of the discovery in all its important details, but says he saw a lump of rich copper ore, measuring many cubic feet, amongst the extraordinary quantity of scattered *debris*, which he pronounces ready and fit for immediate removal from the surface. Upon the strength of these facts, an application has been made to his Excellency the Governor, on behalf of several associated gentlemen for a special survey of 20,000 acres in a block, at the upset price of 1*l.* per acre, in conformity with the landsale regulations; and his Excellency, so far from throwing any difficulty in their way, has assured them of his desire to facilitate their views. Indeed, so many gentlemen of experience, integrity, and caution, are so well satisfied of the indubitable security of the proposed measure, that we may say it is as good as carried, only awaiting a definitive arrangement with the banks. It is said that the manager of the South Australian Company intends to take 5,000*l.* on behalf of that Company, and Captain Allen, Mr. Stocks, Mr. Bunce, Mr. Matthew Smith, Mr. Hallett, Mr. Beck, Mr. Grange, and other gentlemen, are prepared to make up the required amount. In announcing this crowning discovery (aptly described by Mr. Osmond Gilles, as the triumphal arch in the mineral kingdom in South Australia), we find it necessary to assure our readers, here and elsewhere, that we never felt more forcibly the duties of moderation and circumspection; and influenced by these views we forbear to give expression to what we have seen, and others have identified, suffice to warrant our belief that copper abounds in our mountain ranges, and elsewhere, to an almost unlimited extent, and which would have been described by Dr. Johnson as "rich beyond the dreams of avarice."—*Adelaide Observer.*

THE CORNISH RAILWAYS.

Comparative Statement of Gradients, Tunnels, and Length of the Cornwall and Devon Central Railway, and the Great Western and Falmouth Junction Railway, between Falmouth and Exeter.

GRADIENTS ON THE CORNWALL AND DEVON CENTRAL LINE.

	Miles.	Fur.	Ch.
Level		1	
1 in 80	2	6	
Level			5
1 in 100		4	
1 in 80		6	
1 in 132		3	
Level		1	
1 in 132		4	
Level			5
1 in 88		2	5
Level			3
1 in 88		4	7
Level			6
1 in 80	1	3	6
Level		1	
1 in 88		4	7
1 in 146		5	
Level		1	7
1 in 100	4		
1 in 132		6	
Level			7
1 in 100		7	3
Level		1	
1 in 176		3	
Level		1	5
1 in 377		6	
Level		1	
1 in 440		4	
Level			5
1 in 165		4	
Level			6
1 in 163		4	
1 in 120	1	1	
Level		2	
1 in 130		4	
Level			6
1 in 264		5	4
1 in 165	1	5	6
1 in 132	1	1	
Level			6
1 in 220		4	
Level		1	
1 in 220		2	
Level		2	
1 in 132	1		
Level		6	
1 in 132		6	
Level			8
1 in 132		2	7
Level		4	5
1 in 132	1	3	
Level		3	4
1 in 198		3	

	Miles.	Fur.	Ch.
1 in 80		4	1
Level		2	
1 in 80		1	
Level			5
Level			5
1 in 100		6	
1 in 80	2		
Level		1	
1 in 80		7	6
1 in 132		3	
1 in 100		3	
Level		1	
1 in 100		5	
1 in 80		5	5
Level		1	7
1 in 646	1	2	
1 in 80	4		
Level		3	5
1 in 80	1	7	5
Level		4	5
1 in 80	2	4	
Level		1	5
1 in 105	1	1	5
Level		1	4
1 in 128	1		
Level			4
1 in 80		1	2
Level			4
1 in 94	1	4	5
Level		6	5
1 in 176	3	5	
1 in 132		7	
Level		2	
1 in 132		6	
1 in 176	2	4	
1 in 110	2	2	
Level		2	6
1 in 105	3	3	5
1 in 209		6	
1 in 132		3	5
1 in 165	1		7
Level		4	7
1 in 80	1	0	5
Level		3	5
1 in 132		3	
Level		2	5
1 in 132		5	5
Level			7
1 in 132		4	
1 in 88	1	6	
Level		3	
1 in 132		4	
Level			6
1 in 110		7	5
Level			8
1 in 132	1		
Level		1	
1 in 105	1	5	
1 in 195		6	
Level			8
1 in 132		6	

	Miles.	Fur.	Ch.
Level			7
1 in 110	1	6	
1 in 94		6	
1 in 88		7	5
Level		1	3
1 in 160		4	
1 in 132		5	
1 in 660	1	3	
1 in 132		5	
1 in 330		5	
1 in 264		2	6
1 in 297		2	
1 in 195		5	
1 in 275		5	
Level		2	
1 in 264		4	
1 in 352		5	
1 in 377		6	
1 in 158		6	
1 in 260	1		
Level		1	
1 in 96	1		

Tot. length of Cornwall and Devon Central line 103 2 0

GRADIENTS ON THE GREAT WESTERN AND FALMOUTH JUNCTION.

	Miles.	Fur.	Ch.
1 in 182	3	4	
1 in 196	3	2	
1 in 632	2	1	
1 in 185	2	4	
1 in 1760	2	3	
1 in 147	2	1	
1 in 363	1	1	
1 in 460	2	6	
1 in 264	1	6	
1 in 137	1	3	
1 in 130	1	5	
1 in 306	1	1	
1 in 194	2	2	
1 in 154	2		
1 in 194	3	3	
1 in 468	2	5	
1 in 119	1	4	
1 in 731	1		
1 in 148	2	5	
1 in 96	4	6	
1 in 96		4	
Level		6	
1 in 100	4		
1 in 84	4		
1 in 685	1		
1 in 119	1	6	
1 in 115	1	1	
1 in 179	3	2	
1 in 108	2	1	
1 in 162	2	5	
1 in 82	1		
1 in 734	2	7	
1 in 193	3		
1 in 369	1	3	
Level		7	
1 in 193	2	1	
1 in 277		5	
1 in 173		7	
1 in 190	1	6	
1 in 180		7	
1 in 339		7	
1 in 150	1	5	
1 in 115		2	
1 in 352		7	
Level	1	4	

Tot. length of the Great Western & Falmouth Junction Railway .. 90 7 —

Crediton & Exeter Railway .. 7 — —

97 7 0

GRADIENTS ON THE CORNWALL AND DEVON CENTRAL LINE.

STEEPER THAN 1 IN 100.

	Miles.	Fur.	Ch.
1 in 80	2	6	
1 in 80		6	
1 in 66		3	5
1 in 88		4	7
1 in 80	1	3	6
1 in 88		4	7
1 in 88		3	
1 in 88		7	5
1 in 80	4	1	
1 in 80		1	
1 in 80	2		
1 in 80		7	6
1 in 80		5	5
1 in 80	4		
1 in 80	1	7	5
1 in 80	2	4	
1 in 80		1	2
1 in 94	1	4	5
1 in 96	1		5
1 in 88	1	6	
1 in 94		6	5
1 in 88		7	5
1 in 96	1	1	

Gradients on Central steeper than 1 in 100 .. 31 4 8

GRADIENTS ON THE GREAT WESTERN AND FALMOUTH JUNCTION.

STEEPER THAN 1 in 100.

	Miles.	Fur.	Ch.
1 in 96	4	6	
1 in 96		4	
1 in 84	4	4	
1 in 82	1		

Gradients on the Great Western and Falmouth Junc. line steeper than 1 in 100 .. 10 6 —

TUNNELS ON THE CENTRAL LINE.

M.	F.	FROM FALMOUTH.	Yards
A 5	0	Penrya	120
3	0	Burnt House	960
3	4	Canawe's Wood	220
7	4	Killiow	940
9	3	Bosrigo	300
16	3	Killigrow	1230
25	3		440
34	6		480
44	6		790
52	7	Fipers' Pool, marked on section 700 yards	530
73	3	Hatherleigh	460
80	3	Colebrooke	570
102	3	Easter, not marked on sec.	220
102	5	Do., marked on sec. 420 yds.	560
		Total yards	7890

TUNNELS ON THE GREAT WESTERN AND FALMOUTH JUNCTION LINE.

	Yards
At Burnt House	726
Killiow	224
Bucks Head	440
Launceston	924
Total yards	3014

Total yards of tunnelling on the Central line			Yards 7890
Ditto on the Great Western and Falmouth Junction			3014
Excess of tunnelling on the Central line			4876
		Miles. Fur.	Ch.
Length of the Cornwall and Devon Central line		103 2	0
	M. F.		
Ditto Great Western and Falmouth Junction line	90 7		
Ditto Exeter and Crediton Railway	7 0		
		97 7	0
Greater length of the Central line		5 3	0
Gradients of the Central line steeper than 1 in 100		31 4	8
Ditto of the Great Western and Falmouth Junction		10 6	0
Excess of steep gradients on the Cornwall and Devon Central line		20 6	8

Changes of gradient on Cornwall and Devon Central..... 144.

Changes of gradient on Great Western and Falmouth Junction..... 45.

TO JOHN HEARLE TREMAYNE, ESQ.

London, 16th December, 1845.

SIR,—The importance of the subject upon which I am about to address you, and the position which you hold in relation thereto, will render any apology from me for this letter unnecessary. In a letter of yours, recently published, in reply to some other writer, you ask how you are to proceed to reconcile the differences of the conflicting interests in Cornwall—the broad and narrow guages—the connection of each with an established railway company, you at the same time fairly explained. The difficulty which presented itself to your mind must have been equally felt by every one who has given the subject serious consideration, and the impracticability of amalgamating those interests whose very existence is based on antagonist principles will be readily admitted. I address you now, more especially as the representative of Cornish interests, than as a promoter of any particular railway project, and I would ask, whether on all hands there has not been evidenced greater subserviency to the dictates of railway companies, than a sterling spirit of independent advocacy and support of the course most beneficial to the public, and to our own county in particular. To us the question of the guages, abstractedly considered, is one of the smallest importance; but inasmuch as that question may, and does, involve the construction of the most beneficial railway for the west of England, the adoption of the one or the other requires most careful consideration. I believe if we had now to make a selection of guage for Devon and Cornwall, that the narrow guage would be considered more economical, and equally advantageous for those remote districts; but we can only regard the extension of railways into Cornwall at the legitimate expansion of a certain recognised and established system; and we should be especially careful not to subject the Western Counties to permanent inconvenience, by introducing, not only conflicting interests, but diversity of guage. We have already communication between Exeter and London upon the broad guage—circuitous, it is true, and expensive, but still continuous and rapid. At present this is the only railway communication between the metropolis and Exeter. We have also between Exeter and Bristol a broad guage line, and no other is projected, or likely to be constructed in that direction. The Great Western Railway Company have also determined on the construction of a direct line to London from Exeter, by way of Yeovil, thus completing the direct connection of the metropolis with the West of England by the broad guage. More than this, beyond Exeter, we neither need nor desire. Whether the Great Western Company would have projected this line, if left to themselves, I need not stop to inquire—they have always been slow to move; but the pledge is given by them, and they have the ability to perform what they promise. We have to deal with facts as we find them, and it is for us to turn them to the best account. Public good is seldom achieved until public injury can no longer be endured. We may now regard the city of Exeter as the great focus of the broad guage interest in the west—I would therefore ask, whether, under these circumstances, in some respects, it is true, new and singular, we, as Cornishmen, should be promoting the interest of our native county, by endeavouring to introduce what must be not only an element of discord, but a permanent inconvenience—the narrow guage—isolated as it would be from the north of England, even should it ever reach Exeter from the metropolis. The difficulty will again recur,—but how is any arrangement to be effected between the parties, and which line of railway is to be adopted, the Cornwall or the Central? I should say, in answer to such an inquiry, not the Cornwall, as a substitute for a Central line, nor the present Central line as a substitute for one which can be shewn to be in every respect superior to it. You stated, some time since, that you thought the country had never been properly surveyed between Exeter and Falmouth, and that you should desire to see a further survey take place. I shall seek to establish the accuracy of that opinion, by the statement which I propose to forward to you with this letter. The construction of the best and most direct line of railway in a national, as well as in a local point of view, being the object to be realised, and not the triumph or success of any particular scheme or company, I shall submit to your candid consideration, the following statements and suggestions for the purpose of effecting a result so desirable. I see no reason whatever to conclude, that such a result is unattainable without encountering the strife or bitterness of a Parliamentary contest. I assume, of course, the sincerity of every profession made by the promoters of the different schemes, that they seek primarily the public good, and relying on the good faith and candour of our county men, I claim from them the redemption of every pledge which they have given, to advance, by all practicable and legitimate means, the county interests. Those interests cannot be promoted by actual conflict, by division of feeling, or division of opinion; and if it should become obvious to any of the honourable men of Cornwall, who are at present embarked in opposition to each other, that those interests can alone be benefited by union among themselves, instead of alliance with strangers, they should be prepared to act upon their honest convictions, and not permit themselves to be swayed by any contrary prepossession or prejudice. To attempt to reconcile the Cornwall and the Central projects, or to induce the promoters of either to yield wholly or materially to the other, I believe to be as hopeless as undesirable. Both are alike bad, the one in principle, the other in detail. Each is supported by a particular railway interest, seeking not co-operation, but conquest; and their hostility can only be restrained by the intervention of a neutral party. Until recently, the country, between Exeter and Falmouth, had never been carefully surveyed. The Central line of the present year, is substantially the Central line of the last year, but rendered far more objectionable than the line reported against by the Board of Trade, by the great increase of tunnelling exhibited on its sections, in the attempt to reduce some very severe gradients. There are no fewer than fourteen tunnels on the line, the total length of which is four miles and a half, five of them of the aggregate length of 2630 yards, being on a gradient of 1 in 80; and, notwithstanding this most obnoxious feature of the new line, gradients varying from 1 in 80 to 1 in 88, and steeper than 1 in 100 prevail for at least thirty miles! Were a better line unattainable, Parliament would doubtless, on a representation to that effect, sanction this rather than deprive the county of the advantages of railway connexion; but while it can be demonstrated that a superior line in point of gradients, tunnelling, general expense, and length, is procurable, a struggle for such a difficult and objectionable line would be hopeless. The Cornwall line, being bad both in gradients and general character, as well as indirect in its course, can only be regarded even in the most favourable light as a means of communicating with Plymouth by way of Liskeard, and to some extent might be available for that incidental purpose. Its extension from Liskeard to Launceston, does not partake sufficiently of the character of a direct line to entitle it to much consideration in that respect.

The line which I suggest as a substitute for those already mentioned, is projected by a company perfectly independent both of the South Western and the Great Western Companies; no spirit of rivalry, therefore, exists to mar its usefulness. A complete and careful survey of the whole country, from Exeter to Falmouth, has been made by an Engineer who had no prepossession to mislead his judgment. The result of that survey is the adoption of a line passing through a country never before selected, and based upon principles the very reverse of those which have led to the adoption of the difficult Central line. The comparative statement which I submit to your consideration with this letter, will best evidence the superiority in all the important points connected with railway construction, which this line, "The Great Western and Falmouth Junction," exhibits, in comparison with "The Cornwall and Devon Central" line. There are four tunnels instead of fourteen, the length of which is one mile and three-quarters, instead of four miles and a half; ten miles of gradients exceeding 1 in 100, instead of thirty miles, and the remainder very superior to those of the Central; while the line between Falmouth and Exeter is at least five miles shorter. These are facts collected from the sections of the respective lines, and therefore, I believe, most accurately detailed. Another important recommendation which "The Great Western and Falmouth Junction" possesses, is its adaption to the existing circumstances of the country, for, by uniting with the line in course of construction from Exeter to Crediton, it extends, by legitimate means, the present authorised lines, and necessarily adopts the existing guage of the country. On the other hand, the Central Company propose to run a parallel line on the narrow guage from Exeter to Crediton, and so on westward——a circumstance in itself sufficient to excite great Parliamentary opposition and disfavour. Could the narrow guage companies succeed in obtaining the sanction of the Legislature to construct the "Cornwall and Devon Central" line, the two Western Counties would be subjected to the inconvenience and delay of a change of guage at Exeter, for all the traffic to Bristol and the North of England; while, by the existing and projected broad guage lines, the communication would be unbroken and direct, both to the Metropolis and to the North.

These statements are made under a thorough conviction of their accuracy. They are susceptible of proof, or open to contradiction; and I am anxious that the subject should undergo the most searching investigation. If, as I believe, the facts are fairly stated, whence arises the difficulty of bringing to a satisfactory termination the present divided and hostile state of the Railway parties in Cornwall? If entered upon by all parties with a sincere determination to act upon their public professions, I can anticipate no serious difficulty, and the best practicable line of Railway may assuredly be secured to Cornwall in the coming Session of Parliament. It may be suggested that the promoters of a coast line would not probably consent to the adoption of a direct line, and that an attempt to promote such an arrangement would be fruitless. I have reason to expect a different result; and as part at least of their line may be made available for the communication with Plymouth, no serious loss need be sustained by that interest. From the promoters of the Central line, whose only object has been the welfare of the County by the construction of "the most direct, central, safe, and continuous line of Railway to the Metropolis and the North of England," I may fairly expect the most candid attention and ultimate active co-operation. Not only Cornwall but the whole kingdom requires that Falmouth should be placed on the best possible line of communication with the other parts of the country. Questions of liability, engagements, and expenses, are mere matters of detail, easily disposed of by men of business, in facilitating and consummating such abiding and important arrangements as the interests of the two Counties involve. Your high position and extensive influence justly entitle you to the honour of being instrumental in effecting this permanent good. You will not, I feel assured, allow the mere interests of rival companies, or the personal ambition, too common to most of us——a desire to be successful at all hazards——to interfere with the public good. A Parliamentary contest may be avoided. Such a contest cannot, in the present day, result in the success of a difficult and inferior line of Railway. I hope I have been able to place before you my views on this subject, in a manner sufficiently intelligible. I beg to submit, with this letter, the statement referred to.

I have the honour to be, Sir, your most obedient servant,

THOMAS HARVEY.

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